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## Disordered eating habits and extreme weight loss techniques in collegiate wrestlers: A qualitative analysis

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DISORDERED EATING HABITS AND EXTREME WEIGHT LOSS TECHNIQUES IN  
COLLEGIATE WRESTLERS: A QUALITATIVE ANALYSIS

An Abstract of a Thesis  
Submitted  
In Partial Fulfillment  
Of the Requirements for the Degree  
Masters of Science

Jaime Marie Mayer  
University of Northern Iowa  
July, 2012

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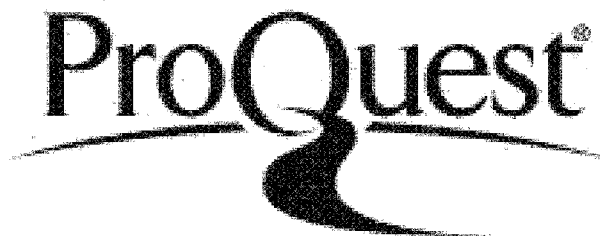


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## ABSTRACT

Wrestlers have often been targeted as high-risk athletes for developing eating disorders. Research has found that wrestlers do practice extreme weight loss and disordered eating behaviors that are consistent with eating disorders. However, little evidence suggests that wrestlers also possess the psychological aspect that is required in order for a person to be diagnosed with an eating disorder according to the DSM (2000).

Many times researchers conclude that few wrestlers meet the criteria for eating disorders, but they participate in many behaviors that put them at risk of developing an eating disorder in the future. Very few if any researchers have directed their studies towards the follow up of retired wrestlers eating and weight management behaviors to determine if wrestlers carry over their disordered behaviors into their everyday life once removed from the wrestling environment.

The age at which wrestlers begin to adopt these disordered behaviors is also unclear. One of the reasons for the lack of information in this area is the difficulty of following individual wrestlers from a young age to an older, more highly competitive age. Understanding or identifying a specific age that wrestlers are more prone to adopting disordered behaviors could aid in future prevention and education for parents, coaches and athletic trainers.

This study will focus on further understanding of the phenomenon behind "cutting weight" in wrestling and the different constructs that may play a role in the development of wrestlers disordered behaviors. Life effects of long term disordered

eating habits and weight loss methods will also be evaluated. This will be done with interviews of current wrestlers and retired wrestlers. Results of this study can help to answer some of the ongoing questions surrounding wrestling behaviors.

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A Thesis

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Of the Requirements for the Degree

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Jaime Marie Mayer

University of Northern Iowa

July, 2012



This Study by: Jaime M. Mayer

Entitled: Disordered Eating Habits and Extreme Weight Loss Techniques in Collegiate Wrestlers: A Qualitative Analysis.

Has been approved as meeting the thesis requirement for the  
Degree of Master of Science

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## DEDICATION

I would like to dedicate this manuscript to my mom, Vangie. Without her consistent motivation and encouragement I would not have decided to continue my education. Having a college education let alone a graduate education is something I know my mom always wanted for me. This is my giving back to her for all of the things and time she had to sacrifice to help me get here. My mom is the strongest and the hardest working woman I know and I can only hope to follow in her shoes.

Mom, thank you for everything you have done and continue to do for me. I hope you know how proud of you I am, and how much I truly admire you. I only hope that as I continue to live my life and work hard towards improving the person that I am, you can see the positive influence that you have had on me. I would not be the person that I am or accomplished the things that I have without you. Thank you and I love you.

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## INTRODUCTION

Eating disorders are a common concern for the general public, especially with adolescent teenagers, however the difficulty with eating disorders is the diagnosis. Eating disorders have been classified into three different types, which can also be broken down further into sub-types. Diagnoses were originally based on clinical observation and were then refined by expert opinion, and the review of research (Grilo, Devlin, Cachelin & Yanovski, 1997). The Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychological Association, 2000; First, Frances & Pincus, 2002) labels the three types of eating disorders as anorexia nervosa (AN), bulimia nervosa (BN) and eating disorder not otherwise specified (EDNOS).

Diagnostic criteria for anorexia nervosa is described by the DSM as a person that refuses to maintain a body weight that would be considered above or at the low end of normal weight based on the person age and height. Diagnostic criteria for bulimia nervosa set by the DSM (2000) is described as occurrence of consuming large amounts of food in a short period of time, often with a sense of being out of control and unable to stop eating. Following binges, a person suffering bulimia nervosa would self-induce vomit, use laxatives, enemas, diuretics, fasting or excessive exercise in order to prevent weight gain. The DSM requires that binge eating and purging occur at least two times per week for 3 months for a person to be diagnosed. "Eating disorder not otherwise specified" (EDNOS) includes people with significant disordered eating who do not meet all of the specific criteria for anorexia

or bulimia nervosa (DSM, 2000). Persons diagnosed with eating disorders also tend to have a phobia of weight gain and becoming fat despite being underweight, and show signs of an altered body image (DSM, 2000).

Disordered eating habits in athletes are often times very hard to diagnose. Many times athletes do not fit the full description of anorexia nervosa or bulimia nervosa, and are diagnosed with EDNOS. Also, excessive exercise may be seen as a contributing factor to athletes' disorders (Hildebrandt, 2005). Davis, Kennedy, Ravelski and Dionne (1994) suggested that excessive exercise leads to disordered eating rather than being a symptom. Therefore, the athlete's environment may increase the risk of developing disordered eating habits (Davis et al., 1994; Taub & Benson, 1992).

Other contributing factors to the development of disordered eating habits among athletes described by Sundgot-Borgen and Torstveit (2010) include: an athlete's idea of the typical body type for their sport, the attempt to increase performance, and pressures from friends, teammates, parents and coaches. Also, athletes who are involved in specific types of sports may be at an increased risk of developing disordered eating habits. Sports that require high power to weight ratio, use weight classes, emphasize lean body type, or are considered aesthetic sports (Griffin & Harris, 1996; Petrie, Greenleaf, Carter, & Reel, 2007; Sundgot-Borgen & Torstveit, 2010). Athletes also need to maintain a high lean body mass low body fat mass ration to achieve optimal performance (Sundgot-Borgen & Torstveit, 2010).

A large amount of research has focused on athletes and eating disorders, and has often shown inconsistent diagnoses of athletes (Baum, 2006; Hildebrandt, 2005; Lantz, Rhea, & Mesnier, 2004; Sundgot-Borgen & Torstveit, 2010; Taub & Benson, 1992). For example, Petrie et al. (2007) found only two athletes out of 199 that were classified with an eating disorder. Lantz et al. (2004) found that athletes with high exercise identity tended to also have higher injury tolerance and more disordered eating behaviors. Athletes who begin dieting attempt to decrease their caloric intake to lose weight or body fat by using abnormal eating behaviors, but many times are not categorized as having an eating disorder. There is much difficulty when attempting to include athletes in the same category as non-athletes when diagnosing eating disorders. Perhaps athletes may be prone to developing disordered eating habits and unhealthy weight loss techniques rather than being prone to developing eating disorders.

While the diagnosis of eating disorders in athletes is rare, there are new diagnoses that have been developed which encompass more of what athletes struggle with, such as anorexia athletica. Anorexia athletica is much more applicable to athletes because of the modifications that take into account differences between athletes and non-athletes environments (Hildebrandt, 2005). Specific factors present in an athletic environment such as training, specific or strict diets, and psychopathological profiles are some of the differences that anorexia athletica diagnoses considers that other disorders do not (Hildebrandt, 2005). For example, these factors are often seen in a wrestling environment, thus causing wrestlers to be

more prone to developing disordered eating habits that mirror those of an eating disorder.

Research on eating disorders with wrestlers tends to be contradictory (Baum, 2006; Keller, Tolly & Reedson, 1994; Nitzke, Voichick, & Olson, 1992). The eating and weight loss practices of wrestlers continue to create suspicion of eating disorders or risk of developing eating disorders (e.g., Baum, 2006; Keller et al., 1994; Kordi, Ziaee, Rostami, & Wallace, 2011; Weissinger, Housh, Johnson, & Evans, 1991). Research has shown low percentages of wrestlers meeting the full criteria for being at risk of developing eating disorders (Dale & Landers, 1999; Opplinger, Landry, Foster & Lambrecht, 1993). For example, Oppliger et al. (1993) found only 1.7% of the 713 high school wrestlers responded consistently with the five DSM-III-R criteria. Perhaps wrestler's disordered eating habits are for the purpose of gaining and losing weight, and are not related to a feeling of guilt, loss of control, or body dissatisfaction. Research has not been able to answer if wrestlers suffer from the psychological aspects of eating disorders (Dale & Landers, 1999).

Engle et al. (2003) discovered that when comparing the relationship of specific sports and disordered eating, wrestling was associated with increased food restriction along with gymnastics. However, when comparing attitudinal measures, wrestlers were significantly lower on both drive for thinness and body dissatisfaction compared to other athletes. Engle et al. (2003) concluded that wrestlers' motivation for losing weight was external, in that assumed the extreme



strategies used by wrestlers to lose weight was simply part of the demands of the sport.

Another example of conflicting opinions is the question as to whether wrestlers suffer from more than just disordered eating habits during their season. Dale and Landers (1999) suggested that due to the nature of sport the increased concern about body weight that wrestlers seem to have is not severe enough to be diagnosed with an eating disorder according to the DSM-IV criteria. Results suggest that wrestling does not increase the risk of bulimia nervosa and future research should focus on educating wrestlers on safe weight loss practices (Dale & Landers, 1999).

In contrast, Baum (2006) suggested that wrestlers, as well as jockeys and rowers, tend to incorporate disordered eating behaviors into their life outside of sport. Baum explains that the repeated abnormal practices and obsession with body weight and image become coping strategies for these athletes. This would suggest that wrestlers are at risk of developing eating disorders later in life. This continued disagreement suggests more research is needed for clarification. Another subject needing clarification is to what extent coaches play a role in the development of an athletes disordered eating habits and extreme weight loss techniques.

Coaches are some of the most influential people for athletes. Often coaches are an athlete's main source of information and guidance. Kordi et al. (2011) found that 57% of wrestlers received information on cutting weight from their coaches. Weissinger et al. (1991) also found that wrestlers received the majority of their

information about cutting weight from coaches, teammates, and parents. In these cases, the coach's perceptions on nutrition and correct weight loss techniques would have a significant impact on how wrestlers choose to manage weight.

Athletes use coaches as references when seeking information on nutrition and weight loss (Griffin & Harris, 1996). Griffin and Harris (1996) investigated coach's perceptions of weight, knowledge of nutrition and weight management, personal experiences with weight, and the recommendations given to athletes. Griffin and Harris found that 99% of coaches included in the study felt proper weight was important for performance. If coaches shared these thoughts with their athletes then this may cause athletes to adopt a similar opinion, and develop disordered weight control methods.

Coaches also thought knowledge about nutrition, weight control, and eating disorders was important (Weissinger, Housh & Johnson, 1993). Coaches claimed to be most knowledgeable about nutrition, obesity, and weight control methods (Griffin & Harris, 1996). When asked about eating disorders, coaches admitted to being less knowledgeable.

Disordered eating in athletes have continually been difficult to diagnose due to the unique environment of sports. Disordered eating in wrestling has shown to be even more complicated due to the sports reliance on weight classes and the extreme habits wrestlers adopt in order to maintain and lose weight. Where wrestlers are obtaining information on weight loss and nutrition has also been

difficult to determine. Clarifying these contradictions is important in order to protect wrestlers from developing unhealthy lifestyles.

Therefore, the purpose of this study was to investigate the development of and future impact of disordered eating habits and extreme weight loss techniques in current and retired collegiate wrestlers. This study will address the stereotype that wrestlers are prone to developing eating disorders by investigating how wrestlers develop disordered eating habits and extreme weight loss techniques, how retired wrestlers describe their current eating habits, and how retired wrestlers have been effected by disordered eating habits and extreme weight loss techniques.

## METHODS

### Participants

A total of 6 current collegiate wrestlers (ages 18-23 years) in at least their second year of a collegiate program participated. Current wrestlers years of experience ranged from 7-15 years, with an average of 11.5 years. All current wrestlers had been high school state qualifiers; most had placed at state with multiple wrestlers having won the championship match at the state level.

Additionally, a total of 6 retired wrestlers (ages 26-33 years) who had competed at the collegiate level, and been retired for at least one year also participated. Retired wrestlers' years of experience ranged from 10-18 years, with an average of 14 years. All retired wrestlers were high school state qualifiers, most placed at state with multiple wrestlers having won the championship match at the state level. Five out of six retired wrestlers qualified for nationals at the collegiate level, with two of those wrestling in the championship match, and one of them winning a national championship. All participants were assigned pseudo names to protect the identity of the participants.

### Measures

An interview schedule was used consisting of five sections: demographics, history of wrestling performance, early years of eating and cutting weight practices, high school years of eating and cutting weight practices, collegiate years of eating

and cutting weight practices, and for former wrestlers, the current eating practices post collegiate career. These questions were developed to evaluate how, where and when wrestlers developed eating habits and weight loss techniques, as well as their awareness of eating disorders in the sport. Some questions varied for retired wrestlers to evaluate the current practices of former wrestlers after being removed from the sport. Follow up questions have been used as necessary.

### Procedures

Following approval from the Institutional Review Board, a pilot interview including two retired wrestlers was conducted to clarify questions, wording, and relevance. Then, the head wrestling coach at a Division I University was contacted to request cooperation and participation in the study. An initial meeting was set up to invite current collegiate athletes to participate in the study, provide information about the study, and to distribute informed consent packets. Wrestlers interested in participating were asked to sign the informed consent and to provide contact information. In order to recruit former wrestlers, current athletes were asked for referrals as well as the use of the primary researchers personal contacts. Interviews were performed by phone for convenience and due to long distances.

At the time of the interview, wrestlers were explained the interview process and reminded that participation was voluntary, they could choose to quit the study at any time, and all answers would remain anonymous. Interviews lasted approximately 15-30 minutes in length.

### Data Analysis

A qualitative analysis was utilized to understand the development and occurrence of disordered eating habits and extreme weight loss measures in current collegiate wrestlers, as well as the future impact of these disordered habits on retired collegiate wrestlers. Interviews were conducted using the interview schedule and were audio recorded. To protect the identity of the participants, pseudo names were used. The interviews were then transcribed verbatim. Interviews were analyzed line-by-line, concept labels were assigned and as categories emerged they were coded. The constant comparative method was used and relationships among categories were further explored and examined for patterns. All data has been constantly reevaluated for discrepancies and similarities.

In order to ensure trustworthiness of the data being collected, peer reviews, member checks, and research journaling were used. The interview transcripts and coding have been presented to a peer who has more than 8 years experience in qualitative research. The primary researcher has presented the story line created to each participant via email for their verification. Participants were asked to either verify that their words were being interpreted correctly or make corrections. A researcher journal was used to record personal reflections or ideas the researcher had during interviews as well as any additions made to the interviews as they were being conducted. Journaling helped guide the research by bringing to light new thoughts and questions that helped with clarification of athletes' responses.

Presentation of the results use of "cutting weight" is being used to represent the weight lost during 72 hours prior to competition or when used by the wrestlers being interviewed.

### Role Of The Researcher

As a practicing athletic trainer, I have professional experience with wrestlers at the collegiate and high school levels. My personal views have developed through my experience as an athletic trainer as well as through personal relationships. I have been made aware of wrestlers perceptions regarding eating disorders on both a personal level and a professional level.

## RESULTS AND DISCUSSION

Current and retired collegiate wrestlers were interviewed regarding their history of wrestling performance, eating and cutting weight practices during their initial wrestling involvement, high school, and collegiate wrestling careers, knowledge of eating disorders, and for former wrestlers, current eating practices post-collegiate career. These questions were developed to evaluate how, where, and when wrestlers developed eating habits and weight loss techniques, as well as awareness of eating disorders in the sport. Questions varied for retired wrestlers to evaluate the current eating practices of former wrestlers after being removed from the sport. Follow up questions were used as necessary.

### Early Years/High School Eating and Cutting Weight Practices

Wrestlers were first asked about their early and high school years of wrestling. Wrestlers were asked to focus on how they were introduced to the sport, motivation to cut weight or not to cut weight, eating habits and weight loss techniques used, and sources of information on how to cut weight during the season.

Nine wrestlers (5 current, 4 retired) out of twelve reported cutting weight in high school. The amount of weight cut by wrestlers in high school was anywhere from 4-20 pounds, with the average being 10 pounds. For most wrestlers cutting weight was their own idea. However, some wrestlers did report the decision to



start cutting weight was both their idea and someone else's. Suggestions to cut weight came from coaches and family members (e.g., father or brothers).

Wrestlers reported cutting weight in high school for various reasons. One reason was to have the opportunity to wrestle at the varsity level. Brad, a current sophomore said, "I wanted to cut because I wanted to be the starter at 160, and I knew I could beat the guy there, but I couldn't beat the guy at 171." Others cut weight in order to wrestle at a weight they felt they would be most successful. Some wrestlers even cut weight because the team needed a wrestler at a specific weight class. These wrestlers decided to cut weight because getting down to that weight class would be easier for them than a teammate. For example, a current redshirt junior, Jason said, "We had a pretty stacked team, so I just wanted to go to a weight that I thought they would need me better at [rather] than try to beat out someone that's already got a good thing going." Jonathan, also a current redshirt junior, explained:

It was always a group decision kind of...the first time it was introduced to me was when I was in 5<sup>th</sup> grade and I was supposed to be wrestling 155 on this All-Star team, but they needed a 150-pounder and I only weighed 153...I didn't really know what I was doing, but they just said you could probably wrestle 150 and I was like, alright.

Wrestlers reported that their fathers, coaches, and other wrestlers gave them information on how to cut weight. Phil, a retired wrestler said, "Fellow wrestlers, father, coaches, they are all who I went to." However, some wrestlers reported not receiving information from anyone specific. For example, a current senior, Marcus,

explained, "You just kind of see the guys above you doing it." Weight loss techniques suggested by coaches, parents, and other wrestlers varied. A few wrestlers described the typical weight cutting techniques that were not the healthiest of suggestions. Jason described some of these:

They want you to eat like a structured thing, they weren't really worried about like the quality of meals, they were more worried about the quantity. They wanted to, ya know, have small meals. They didn't really care what I ate, but as long as it was smaller or some of them [meals] not even at all... it was pretty unsupervised so it's pretty easy to drain yourself if you were cutting. But yeah, I mean there's a lot of meals and a lot of working out extra and getting the sweat suit on...it was definitely unsupervised.

Some suggestions by others included outrageous ideas that most wrestlers reported knowing were not healthy and did not use them. For example, a retired wrestler, Cody said:

The information coming to you at least way back then was eat less and workout a lot, but more so eat less and drink less and stuff like that which is really poor information. Use plastics and stuff like that...spit in a cup, all that stupid stuff, stand on your head right before you get on the scale so all the blood rushes to your head, and it's further away from the scale which doesn't make any sense!

Some suggestions were more educated and healthy, such as structured diets that included good basic meals and increased workouts to slowly cut weight. Greg, a retired wrestler, said:

They gave me meal plans as far as what types of foods were good for the body, they talked a lot about water, they talked about slowly cutting weight and not doing it too fast, ya know, and that I should be, if I was gonna do it I needed to manage my weight and keep it around a certain spot and not be bouncing up and down. So, it was pretty good advice they were giving.

Findings from the current study regarding where wrestlers obtained information about cutting weight is supported by previous research by Weissinger et al. (1991). Weissinger et al. (1991) found that wrestlers received the majority of their information about cutting weight from coaches, teammates, and parents. Lakin, Steen, and Opplinger (1990) also found that the primary sources of information on weight loss were the wrestlers coach, teammates, or former wrestlers. Other sources were parents and physicians (Lakin et al., 1990). Consistent with past research, wrestlers interviewed mentioned all of these sources with the exception of physicians. How wrestlers are informed on weight loss techniques may contribute to the development of eating disorders. If the sources of their information were not educated on correct practices this could lead to poor choices and eating habits of wrestlers at a young age.

#### Collegiate Years- Eating and Cutting Weight Practices

Wrestlers were next asked about their collegiate years of wrestling. Wrestlers were asked to focus on their weight fluctuation, eating habits and weight loss techniques used, perceptions and education of healthy nutrition and weight control, and weight loss effects on performance.

Wrestlers collegiate weight classes ranged from 133-285 lbs. The most common weight classes of the wrestlers interviewed were 133, 149, and 165 lbs. Nine out of twelve wrestlers (2 current, 7 retired) reported cutting weight at some

point during their collegiate careers. Of the nine wrestlers that cut weight during their college career, seven wrestlers reported cutting weight consistently.

On average, wrestlers reported coming into season 20-30 lbs over their weight class. In order to get within range of their specific weight class wrestlers reported having to cut weight. This was usually described as "gradual, slowly over time". Most wrestlers explained that as they gained experience, the amount of weight they had to lose at the beginning of the season decreased. For example, Bob, a redshirt freshman, stated:

As I went on in wrestling I realized I couldn't do that, I couldn't let my weight jump around because it's so hard to bring your weight back down ya know? You're fighting if you put on the body fat and you're fighting to cut off body fat while fighting to get in shape... so I stopped letting my weight go as much, I started living a better lifestyle.

Some wrestlers fluctuated 10-20 pounds between competitions. Wrestlers that only used portion control to drop weight did not consider their weight loss between competitions as cutting weight. Depending on the amount of weight being lost or how gradual the weight loss, wrestlers would also deny "hard cutting" or "cutting weight". This process of having to change eating habits and increased workouts was referred to as maintaining their weight. For example, Dale, a 27 year-old retired wrestler, explained:

I wouldn't really call it cutting weight; I would usually lose the weight steadily. The first time getting down was probably the toughest and then my weight kind of, my weight kind of stayed down usually. So I didn't really have to cut hard weight, but I mean I still had to get down to weight. I would usually come in after competition 13 over and then it wouldn't be too

difficult to get back down, I wouldn't say ya know severe weight cutting but, definitely good portion control.

Wrestlers most commonly reported using weight loss techniques such as increased workouts and nutrition changes, ranging from cutting calories to changing calorie quality and meal frequency, in order to lose weight for the season. All but two of the twelve wrestlers that reported cutting weight used these practices every week, all season. A redshirt junior, Jason, specifically discussed changing his meal quality to cut weight during the week of competition:

...Something that's better for me that kind of fills me up quicker without eating a larger quantity of food, so I mean that is usually good, and instead of drinking a lot of Gatorade or Propel or flavored water, I just drink a lot of regular water

Many wrestlers reported not fasting dramatically cutting calories or fluid intake until 24-48 hours before competition. Cody, a retired wrestler, said:

I would typically try to do smaller meals spaced throughout the day, but definitely would somewhat limit my food intake and try not to eat too much more than I needed, and then I'd stay hydrated 'till a day or two before. But all throughout the week I'd be doing extra workouts every day to kind of gradually get my weight down, and then, ya know, I'd be like 5 or 7 pounds over, so the day before that's when I would start to limit my fluid intake and kind of just ring those last 5-7 pounds of water weight out of my body...

Many responses regarding weight loss techniques seemed to reflect an understanding of healthy weight loss and importance of keeping the body fueled for practice and competition. For example, a redshirt freshman, Larry explains,

...I don't try to starve or do anything like that cause I like to keep my metabolism up, and I like to have a lot of energy for practice or as much as I can. So I try to put in at least 2 lbs of water a day and if not ya know, three meals plus a bar here or there just to keep my metabolism up.

During the off-season, most wrestlers reported gaining weight and not being as concerned about food intake. However, some wrestlers reported being more conscious about food consumption during the off-season because they knew they were not burning the same amount of calories compared to when they were in-season. For example, Jason explained:

I don't actually eat horrible at all when I'm out of season because I don't work out nearly as hard and I realize that if I eat horrible all of the time I'm just going to undo everything that I'm trying to do. So, my habits and eating change drastically when I'm out of season, I eat a lot healthier.

All wrestlers said that they felt cutting weight had an effect on their performance. The majority of wrestlers reported a negative effect during the beginning of the season or closer to competition. This was most commonly due to cutting weight the "wrong way" or having less energy for practice. For example, a senior, Marcus said:

Quite a bit, right at first but the first time you get down is always the worst then eventually your body gets used to it... I think it's just the shock of the body, I mean your cutting out 2,000 calories almost more than 75% of your calories and it's not healthy. So it's just that shock to the body.

In contrast, a few wrestlers reported a positive effect, specifically due to the advantage they had at a lower weight over the competition. Wrestlers also reported feeling better at a lower body weight and having more energy. Greg, a retired wrestler, said:

I think that it [cutting weight] influenced it [performance] quite a bit actually. The reason I say that is because if I had not trimmed down and gotten myself into better shape I would have been wrestling guys that were stronger than

me...I think it was actually beneficial and just kind of forced me to be in better shape and leaner.

Weight cutting techniques described by both current and retired wrestlers were somewhat consistent with the weight loss methods reported by previous researchers (Nitzke et al., 1992). Restricting food intake and increasing exercise were the most common weight loss techniques found by Nitzke et al. (1992). However, wrestlers in Lakin et al.'s (1990) study also reported using rubber/plastic suits, diet pills, vomiting, laxatives, and diuretics to cut weight. None of these techniques were mentioned being used by either current or retired wrestlers. This group of wrestlers may not have used such techniques because of the type and quality of guidance they received from their coaching staff.

Wrestlers also reported changing weight loss techniques after entering college based on information provided by the coaching staff. Wrestlers often mentioned the coaching staff as playing a large role in their education and healthy eating habits. Brad, a current sophomore, said:

Our coaches gave us the nutrition sheet at the beginning of the year and said if you're going to cut weight here is the way we do it, here is the recommendation. It's like, you're gonna feel great, you're gonna be able to eat and you're going to be able to burn off a lot of energy and fat and your metabolism is going to go up and I think that helped me a lot.

Most current wrestlers that cut weight both in high school and in college reported a difference at the two levels in coaches' perceptions of cutting weight. For example, Bob a current redshirt freshman explained, "Coach is not a big advocate of cutting any weight or missing meals to cut weight. He is fine if you can cut the weight, what

he wants is he wants [you] to be able to eat constantly and fuel your body and he just wants you to work out more to lose the weight [instead of fasting]." Some current wrestlers have also mentioned how their practices have changed since their coaching staff has changed. Jason, a redshirt junior, reported,

About 2 years ago, eating habits changed, it can be traced back to when Coach got here, stuff [eating habits] changed because before it was like, oh you know, [I] wasn't really worried about it but then Coach got here and he just overhauled everything it was awesome, probably one of the best things for my eating habits and my physique and my wrestling definitely.

Better education amongst the coaching staff is also noted as playing a role in the improvement of cutting weight practices in wrestling. Retired wrestlers also commented on the improvement of coaching perceptions. Cody, a retired wrestler who is also a collegiate coach, said:

I think a lot of coaches are involved more now and educated in terms of not encouraging wrestlers to cut weight. Ya know, one thing our staff says is we encourage all of our guys to live and train at, ya know, maximum 5-8 lbs over their competitive weight and if they can't do that then they're at the wrong weight class and we move them up. A lot of our guys in our lineup we have almost forced them to go up over the last few years just because I think it's just better for them as people and better for the sport overall, if we get away from that, ya know, weight loss type of stuff.

Engle et al. (2003) discussed how coaching may play a role in an athlete's development of disordered eating habits or an eating disorder. The education of wrestlers on how to lose weight the correct way as well as the importance of good nutrition plays a large role in the development of good eating habits. Coaches agreed that being knowledgeable about nutrition, weight control, and eating



disorders is important in order to provide correct guidance to their athletes (Weissinger et al., 1993).

Information provided by both current and retired wrestlers suggests that there has been a trend of change in the sport of wrestling in relation to losing weight to "make weight." As mentioned earlier by Cody, the sport of wrestling is attempting to move away from the unhealthy weight loss practices. More of a focus is being put on living a healthy lifestyle to maintain a weight rather than having to cut weight. Many current wrestlers discussed healthy lifestyles and less emphasis on last minute fasting and dehydration.

Increased exercise, food restriction, fluid restriction, dieting, fasting, dehydration using heated wrestling rooms or rubber/plastic suits, diet pills, vomiting, laxatives, and diuretics were all found to be common weight loss techniques used by wrestlers (Lakin et al., 1990). Dehydration using heated wrestling rooms or rubber/plastic suits was only mentioned by 2 of the retired wrestlers in this study. Only one of which actually used one of these techniques. Diet pills, vomiting, laxatives, and diuretics were not used by any of the wrestlers interviewed. Nitzke et al. (1992) reported restricting food intake and increasing exercise as the most common weight loss technique. This is consistent with both retired and current wrestlers reports.

The more extreme practices, such as using diuretics, vomiting, and use of laxatives are all included on many eating disorder inventories. While this group of wrestlers interviewed reported not using the more extreme practices, other studies

have shown these techniques being used by athletes (Lakin et al., 1990). It is these extreme weight loss techniques that lead many to believe these athletes potentially have an eating disorder. However, the consistency of these practices and other criteria necessary to be diagnosed with an eating disorder are not present with many athletes. This is why few wrestlers are actually diagnosed with eating disorders. Many researchers have focused on athletes and eating disorders and have shown inconsistent diagnoses (Baum, 2006; Hildebrandt, 2005; Lantz et al., 2004; Sundgot-Borgen & Torstveit, 2010; Taub & Benson, 1992). Petrie et al. (2007) only found two out of 199 athletes classified with an eating disorder. Therefore, it may be unfair to classify certain athletes, especially wrestlers, as being prone to having eating disorders based on current eating habits. Or perhaps wrestlers in the twenty first century are better educated and informed about healthy weight management techniques, thus former perceptions of the prevalence of eating disorders among wrestlers is now inaccurate.

#### Current Collegiate Wrestlers: Current Eating and Weight Loss Practices

Current wrestlers were then asked to focus on out of season weight fluctuation and concerns. Retired wrestlers were asked to focus on residual effects of weight cutting and current weight concerns. Both current and retired wrestlers were asked to reflect specifically on binge eating occurrences.

Current collegiate wrestlers felt their current eating habits and weight loss practices were healthy. Common eating habits reported by current wrestlers

included balanced meals, cutting out fast food and fatty food, getting multiple meals during the day, healthy snacks, eating smaller portions, and avoiding eating late at night. For example, Larry, a current 20 year-old said,

In the morning I like to have some cereal with milk and some fruit, dinner usually like a sub sandwich or something, and at night maybe a little bit of pasta with some protein in it like chicken or steak. And yeah, if I'm gonna snack, I'm gonna snack on a dry cereal or snack on strawberries, grapes or apples, or just fruit, stuff that's good for you, and that is gonna give you good energy.

Most wrestlers reported that they experienced weight gain during the off-season. The amount of weight ranged from 5-20 pounds. The only wrestler that reported not gaining weight was a heavyweight wrestler who did not need to "cut weight" in-season. Out-of-season practices were not as disciplined in comparison to in-season practices. During out of season, some wrestlers reported eating whatever they wanted, others reported eating the same types of foods, but eating until satisfied instead of controlling portion size.

During off-season, current wrestlers did not really worry about weight. Two out of six reported that their weight was in the back of their mind or that they would begin to worry about their weight about a month before season started. In contrast, others reported not worrying about weight at all because they maintain decent eating habits in the off-season, so their weight is not out of control. A current redshirt freshman, Bob said,

I figure my body will go where it wants to go, I don't eat really bad out of season so it's not like I'm gonna blow up to a weight I'm not supposed to be at. [And] if I get up, if I weighed 210 you know over the summer, I would just tell coach that I guess that's where I'm supposed to be.

Sixty-seven percent of current wrestlers said they did not feel guilty after eating. The remaining 33% said they would feel guilty occasionally during the season when they would eat something that they should not have. No one felt guilty during the off-season.

Four out of the six current wrestlers reported never binge eating during season or out-of-season. Two reported binge eating, but not to the extreme of the definition given. Wrestlers reported eating to the point of being uncomfortable, but not out of control. Brad, a 21 year-old current wrestler, said, "Not out of control, but definitely uncomfortable, usually the Monday after a weekend meet when we don't have another meet that weekend or the end of season." Most wrestlers reported occasionally binge eating, but not often. Binge eating occurred after tournaments or after the season. Two current wrestlers described binge-eating episodes as a ritual or a tradition at the end of the season. Bob explained, "Occasionally, I used to have a big ceremony after season where as soon as season was over I would go out and I just eat whatever I felt like...me and the rest of the wrestling team like 15 guys would go out and just eat whatever we wanted as much as we wanted." Jason, a current junior, and others reported binge eating when "goofing around with a bunch of buddies, going to buffets just seeing how much we could eat." Wrestlers did not binge eat right after weigh-ins due to not having much room in their stomachs, and reported more of a desire to drink fluids rather than eat. Almost all wrestlers, 11 out of 12, reported they did not binge eat during the off-season. Two wrestlers

reported that the lack of binge eating in the off-season was specifically due to being less strict with diets. For example, Jonathan said,

I'd say during the off-season it's not as bad because it's not like I'm thinking about it. So, after Saturday's I'm like, alright this is the only day that I can eat whatever I want and I have time to make up for it which is not the right way to do it really because then I'm shooting up and have to go back down, but I still do it. So, in the off-season I'm not worried about it, I can have a cheeseburger if I want, so it's not like I have to have it.

Three of the six current wrestlers reported not feeling self-conscious about their weight. Jason reported feeling self-conscious his first few years in college and that was one reason he cut his weight down. He said, "I've seen these other guys with these cut up physiques and I was like, I want to have that. So that's probably the main reason I cut down to 220 is to try and get a little more good looking with the body." Bob reported being more concerned about his fitness level and not necessarily his weight:

I used to, before I started wrestling. One of the reasons I started was I was really out of shape. I was a very fat kid, very short, very fat, not much muscle. It took me years, like 'til my freshman year to get over it and I don't know, in college I sort of got over it... I don't care as much about the number as much about if I get fat or soft. I don't like being physically in bad condition, if I need to do whatever, out run something or react a certain way I want to be able to do it.

Wrestlers that reported wanting to "look fit" and not wanting to "get thick" also mentioned self-image being important, and their perceptions were based on what they personally thought looked good. For example, Larry said, "Self image is big to me, I like to look good, I like to look fit. In other words, so I might watch my weight

for ya know two or three days till I feel like I'm toned or where I need to be or what I personally think looks good."

#### Retired Collegiate Wrestlers: Current Eating and Weight Loss Practices

Retired wrestlers eating habits were different now compared to when they were competitive wrestlers. Five out of the six retired wrestlers reported trying to eat healthy, but for the most part, retired wrestlers would eat whatever and whenever is convenient. Cody said,

I try to eat healthier, I don't always, I mean I eat what I want typically, but I definitely try to eat somewhat healthier, but I don't always get breakfast. I usually get coffee in the morning which is something I never did when I competed and then I'll have lunch and dinner every day. We have a café right up here and they usually offer some pretty healthy options for lunch. I would say ya know I'm not eating fast food or anything like that, so I have lunch and dinner and that's about it.

To maintain weight, all retired wrestlers reported exercising and staying active, either with wrestling or other sports. As far as eating practices, two retired wrestlers reported being aware of caloric and fat intake or portion size. For example, Greg, a 33 year old retired wrestler, said,

Exercise, lots of exercise, jogging specifically, I do some Crossfit stuff, some running, some wrestling, obviously, this time of year. Food, I pretty much eat what I want, ya know obviously I just try to control portion size, I don't worry so much about the actual food.

All but one retired wrestler stated that they give their body what it needs, eat when they were hungry, stop when they were full and eat what is convenient, but staying away from unhealthy choices like fast food.

About 83% of retired wrestlers reported worrying about their weight. This was either due to their role as a coach and being able to workout with certain weight classes, or a fear of being overweight and out of shape. For example, Cody said,

Only in the sense that now I'm a coach so I have to stay in decent shape and I need to, typically I try to stay around a certain weight to be able to workout with certain guys on the team and give them their feel. I think I weigh about 190 [pounds] now and if I tried really hard I could get close to about 200 pounds, and if I never lifted or did anything at all I think I could lose 10 pounds pretty easy, but I try to keep like a healthy mix of lifting, but not getting to heavy. So, I could still workout with everyone from our 174 pounders to our heavyweights.

Even the retired wrestlers that reported being worried about weight reported not making any changes. Two retired wrestlers reported being more aware of their portion sizes. Half of the retired wrestlers that worried about weight were more aware how their weight affects their job. For example, Cody said, "Only in the sense that now I'm a coach so I have to stay in decent shape and I need to, I typically try to stay around a certain weight to be able to workout with certain guys on the team and give them their feel." Greg was more concerned about his body composition than his actual weight. He said, "I definitely worry about being overweight, ya know I want to maintain a certain body fat, it does bother me to be, if I was over weight."

Only two retired wrestlers reported feeling guilty about eating when they were competitive wrestlers. This was due to eating something that they should not have while they were in the process of cutting weight. Now that they are no longer wrestling, two other wrestlers reported feeling guilty when they would eat too

much and feel overly full. Otherwise, the other 4 retired wrestlers did not have feelings of guilt after eating.

Currently, two retired wrestlers did not binge eat. The other four reported occasionally eating to the point of being uncomfortable when eating at restaurants. For example, Greg said, "Very occasionally, maybe once a month ya know if we go someplace where it's more of like a buffet or something like that. It's not very often." Dale, a 27 year-old retired wrestler, reported a similar experience, however slightly more often, "If I would binge eat it would be if I like went to a Chinese buffet, or if me and my wife order a pizza and she'll have a couple [pieces], and I'll have the rest, or when we go out to eat for dinner one night at a nice restaurant."

However, when these individuals were competitive collegiate wrestlers, half of the retired wrestlers, did report binge eating. Similar to the current wrestlers in this study, Steve a 26-year-old retired wrestler said, "During season, it could be almost a weekly occurrence because it was our thing to do. When it was Sunday and we weren't wrestling it was like ok here's our free day!" Another retired wrestler, Phil also reported, "Maybe once a month during the season, so throughout the season maybe 3 or 4 times [he remembered binge eating]."

These types of comments suggest a ritualistic component to wrestlers' eating habits. It was mentioned earlier by current wrestlers that binge eating was tradition after tournaments when they did not have a competition that following week. Previous research discusses how this aspect of wrestling is related to an athlete's identity (Lantz et al., 2004). Since this behavior is considered a part of



wrestling it may be encouraged or supported by teammates and coaches (Baum, 2006). This is often the reasoning behind many of the eating habits and weight loss techniques of wrestlers. In contrast, while these practices may be occurring during a wrestler's career, these findings suggest that binge eating and weight cutting does not continue after a wrestler is finished with their career.

Aside from physical practices (e.g., cutting calories, dehydration, and increased workouts) that contribute to the diagnosis of an eating disorder there are many psychological criteria, such as having a phobia of weight gain, fear of becoming fat, and altered body image. This is often where wrestlers begin do not meet the standards for eating disorder diagnoses. Engle et al. (2003) found that wrestlers were significantly lower on both drive for thinness and body dissatisfaction compared to other athletes.

Most current wrestlers interviewed reported not having any feelings of guilt after eating, and the few that did related them directly to eating something they should not have while cutting weight. None of them reported any guilt during the off-season. Only 2 out of the 6 retired wrestlers reported feeling guilty while wrestling, and the same number reported sometimes feeling guilty when they ate too much and were uncomfortable. Half of the current wrestlers also reported not being self-conscious. One wrestler reported feeling self conscious prior to becoming a wrestler, but not now that he is in better shape.

Results from these interviews suggest there is not a psychological component to the actions of wrestlers. In order for an eating disorder to be

diagnosed there must be some type of internal motivation for the weight loss, such as body image, strive for thinness, or a fear of gaining weight (DSM, 2000). Engle et al. (2003) concluded that the extreme strategies used by wrestlers to lose weight was simply part of the demands of the sport.

### Eating Disorder Knowledge and Perceptions

Lastly, wrestlers were asked about their knowledge and perceptions regarding eating disorders. Wrestlers were given a definition of various eating disorders and asked to compare themselves, and comment as to whether or not they fit the description. Wrestlers were also given a definition of disordered eating habits and asked if they felt they fit this description.

Retired and current wrestlers varied considerably on their knowledge about eating disorders. Only one of the twelve wrestlers admitted to not knowing anything about eating disorders. Two wrestlers felt that people with eating disorders had at one point been misinformed or had a lack of knowledge regarding eating habits. Three mentioned willpower, traumatic events or life stress, and self-image or body image issues playing a role in the development of an eating disorder. The interviewed wrestlers mentioned wrestlers five times when discussing what came to their mind at the mention of eating disorders. Two wrestlers reported personally knowing someone that struggled with an eating disorder. Cody, a 29-year old retired wrestler, said:

I think it's [eating disorders] a very broad encompassing term like, I think it could range from, ya know, I mean you see it [and], ya know, you think of the skinny girls you see on TV. But it's also, I mean you see it in wrestlers or at least old school type wrestlers. I think our sport has gone away from it at certain levels. I think at the collegiate level there's not as much of it going on...I guess it depends on how you define it.

Three wrestlers had a very good understanding of eating disorders, like Greg, a 33-year-old retired wrestler:

I guess what I think of is I think more females. But I do, obviously, I teach this in a class so I am aware that males are affected by it and especially males in certain sports. But, ya know, I think of the binging and the purging obviously. Someone says eating disorders and the first thing that pops into my head is bulimia and anorexia obviously too.

Marcus, a current senior, related his experience to what he knows about eating disorders:

It's kind of messed up, you see the wrestlers that throw up and you see all the different types, and then you just see the people in the TV shows and, I know what it's like not to eat and to starve myself. And so then I look on the outside world and they're not doing it for a sport, like there is no end result and it just makes me wonder and, not bothers me, but shocks me that people actually desire to be that way.

Wrestlers were asked if the definition of various eating disorders described their weight loss practices. Nine of the 12 wrestlers did not feel this was an accurate depiction. Wrestlers explained they did not fit the description because: (a) they did not use certain techniques, or (b) the motivation was different. For example, Jonathan, a redshirt junior said, "people with an eating disorder are doing it for a, just a reason like looking smaller. I have to do it; I have to weigh a certain amount so if I wasn't wrestling and I wasn't weighing in then I wouldn't care. So it's not like mentally something where I'm like I cannot eat this." Phil, a 27 year-old retired

wrestler, explained, "When I competed I was very regular with my meals, I tried to eat the best things and um, I don't think I was, it was very infrequent I would miss meals. I would decrease calories, but I always made sure that I was feeding my body." One current wrestler explained he felt like he did fit the description few years ago, but he currently does not. Another wrestler admitted to fitting the description when he was a high school wrestler, but did not feel like that continued in college. However, Dale, a 27 year-old retired wrestler, said "Sure, yeah, I'd say that, cause ya know, I won't eat for a couple meals and I'll eat way too much for next, and um yeah definitely the frequency is not, ya know, solid. It's never the same especially with wrestling season, we're traveling and we're eating late or early at odd times or not at all."

Half of wrestlers interviewed felt that eating disorders are pretty common amongst wrestlers. However, most wrestlers felt eating disorders were less common in college than in high school. For example, a current redshirt freshman, Bob said:

Oh, pretty common I would say, not as much as people maybe in high school certainly. I knew multiple people I would classify as bulimic, anorexic, I feel like anorexia bulimia a lot of people do it for the sake of just being in shape for the sake of whatever, but we do it to hit a certain weight. So, I would say it was a different motivating factor, but they could definitely fit the description.

Education was also mentioned as playing a role in the frequency of eating disorders in wrestling. Larry, a current redshirt freshman, said, "I feel like it's pretty high, I feel like a lot of people like I said, like wrestlers might not be educated about it therefore they don't do it correctly. So I feel like the percentage of wrestlers that do

it (have an eating disorder) is probably pretty high". Greg touched on the difference between in-season and out-of-season, as well as the frequency of disordered eating in comparison to eating disorders:

In season, I would say that it is fairly common to have, ya know, the disordered eating, ya know, whichever way you want to describe it, I think it is pretty common. If you're considering the caloric, the fasting, and things like that, if your considering what would be extreme measures, maybe sauna suits, saunas, I think that happens pretty frequently. Um as far as, ya know, the laxatives, the diuretics, the throwing up, the binging, I don't know that that happens as much, but I'm sure that happens too.

In general, disordered eating was reported to be more common than eating disorders. Larry said, "Probably pretty high for those who are uneducated about it, who think starving themselves, and ya know, dehydrating themselves at the last second, little things like that." Bob also explained, "I'd say more common than the first (eating disorders) for sure. If you can't have something for 6-8 months out of the year, you tend to overdo it the few months that you can." Bob goes on to explain how he feels this leads to wrestlers having issues with their weight after their career is over. He continues:

That's why you see so many wrestlers that as soon as they stop wrestling their whole body just goes to shit and they just get huge. They don't know how to regulate their weight without wrestling, and they don't have a motivating factor since they don't have to make a weight. They think, 'well I can just eat whatever I want whenever I want' but there's not that outside factor what you have to think about the rest of your life.

Five wrestlers felt that wrestlers were prone to developing eating disorders. One reason discussed was the repetitiveness of difficult training practices. For example, Steve, a 26-year old retired wrestler, explained,

I just tell it from myself and from what I've seen. You train yourself to do certain things which it's hard to do, it's you have to weigh yourself and you have to have control to miss things, to put extra workouts in. And I think sometimes it's almost worse when wrestlers are done because you see some people cannot control their diets, so all of a sudden they become binge eaters on a consistent basis, um, and I know there is probably quite a few people that struggle now. And they've even been out of wrestling for five years with weight control and their portions when they eat, so I think that it definitely contributes to problems.

Others discussed disordered eating being more likely for wrestlers to develop after weight cutting is over. This is due to the binging that commonly occurs after competitions. Dale explains:

... I think that there are some [that develop eating disorders], I just think that disordered eating would probably fall in the lines of that just because of um, ya know, they've been through cutting weight and uh, ya know, which that would be their getting themselves down to weight...these days wrestlers workout so much that there's really not a lot of, ya know, just complete fasting where they have a little bit. Ya know, portion control, but then there is that binge afterwards and not like right after weigh ins, but after competition is over. I'd say there would be maybe some eating disorders to get down to that weight, but then once weight cutting is over I would say more disordered eating.

Six wrestlers mentioned that although many wrestlers habits fit into the eating disorder and disordered eating descriptions, wrestlers' motivation for cutting weight was more extrinsic. Jonathan, a current redshirt junior, said, "People with an eating disorder are doing it for a, just a reason like looking smaller. I have to do it, I have to weight a certain amount so if I wasn't wrestling and I wasn't weighing in then I wouldn't care so it's not like mentally something where I'm like I cannot eat this." Thus, these wrestlers felt it was rare for disordered habits to continue after being done with competition. Greg explained:

As far as what has to be done for the sport, yes, I think that a lot of wrestlers realize that they are gonna want to make a certain weight, but as far as like do I think that there's residual effects later in life, I don't think that it's as prevalent. I think it's very rare that someone would, ya know, get out of the sport and have some type of hangover, like a residual effect from it.

Three wrestlers felt that the number of wrestlers that develop disorders has decreased due to actions taken by the NCAA in 1997 to control weight cutting, and coaches attempting to improve the sport. Cody reported:

Yeah, probably at least some of them [would develop disorders], I wouldn't say everyone is, but I have seen some that have and again it's how you define it, especially after they are done competing. I don't think any of them feel social pressures or anything or their worried about their appearance or anything like that, but its more so just about making weight and especially early on like I said. I think there is a lot of misinformation and a lot of old school type things still going down at the lower levels...the NCAA has taken big steps to get away from that in terms of making sure that you can only lose a certain amount per week...I think a lot of coaches are involved more now and educated in terms of not encouraging wrestlers to cut weight.

Wrestlers often made a point to mention how the eating disorder description given describes anyone attempting to lose weight. This is a valid point considering cutting calories and increasing activity is usually how the general population attempts to lose weight. Marcus said:

If you go by the eating disorder definition, every workout plan that's out there and every diet plan that's out there is an eating disorder because every diet is cutting calories, and with the diet they want you to work out more so that increases your workouts. So, does that mean that everyone out there like the 'Biggest Loser' has an eating disorder? That's just something to throw out there.

Thomas, a 26-year old retired wrestler makes the point that if done correctly there is nothing wrong with weight loss for an everyday person going on a diet or an in-season wrestler. Thomas explains:

As a wrestler, if it's done the right way, and a lot of people say that cutting weight is ya know, you shouldn't cut weight, you shouldn't lose that much weight, but you still got people every day that are trying to lose weight. So, if done the correct way, ya know, weight cutting is not, I mean, I don't see it as a bad thing if it's done correctly. Now if it's done incorrectly, like I said, I think that's when you have your eating disorders that's your people using diuretics and not eating for days trying to lose weight.

Attention is often drawn to wrestling due to the history of the sport's emphasis on weight and weight classes. Dale made the point that,

Just because there are weight classes in the sport of wrestling doesn't mean that, ya know, guys don't eat for three days to get down there. They workout, they workout 2-3 times a day, so that they can eat and still lose weight, so that's kind of a misconception, ya know. The frequency of workouts are so high to where they lose weight and still take in, ya know, fluids or food just to fuel the net workout. 'Cause if you don't take anything in there is no way you can workout.

This concept of multiple workouts in a day is not uncommon for any high level athlete. Many different sports have multiple workouts during a day consisting of different types of training. Some wrestlers point out that the focus of weight cutting, especially at younger ages, should be more geared towards improving fitness, decreasing body fat, and improving body composition. For example, Greg said:

The message needs to get out there, especially kids at young ages, ya know, if your talking about the sport of wrestling there definitely needs to be less influence (importance?) on the cutting weight. I think that as you get into college especially that people learn to manage it better and do a better job with it, but I think sometimes the information's not there, the maturity to fully understand what's going on. Not only that, but the growth and development that is still going on (at younger levels). It's kind of a slippery slope, I mean you gotta be really careful and I would encourage as a coach to really focus on skill, technique, and if kids are cutting weight to focus on cutting weight to become more lean and become in better shape, not to just get to the weight class. Ya know and your encouraging a healthier living, and



if your out of season not to put on 30 lbs and trying to continue that lifestyle out of season too...that way maybe it would be more of a lifestyle thing and not a disordered eating or eating disorder.

Dale and Landers (1999) suggest that perhaps wrestler's disordered eating habits are for the purpose of gaining and losing weight, and are not related to a feeling of guilt, loss of control, or body dissatisfaction. Wrestlers interviewed mentioned they felt their own motivation for cutting weight is different than a person who has an eating disorder. Many admitted to fitting the definition given for an eating disorder, but quickly added that they cut weight for a specific purpose, and if they were not wrestling they would not try to lose weight. This is supported by Engle et al. (2003), who concluded that wrestlers' motivation for losing weight was external.

Dale and Landers (1999) also suggested that due to the nature of sport the increased concern about body weight that wrestlers seem to have is not severe enough to be diagnosed with an eating disorder according to the DSM-IV criteria. Results suggest that wrestling does not increase the risk of bulimia nervosa, and future research should focus on educating wrestlers on safe weight loss practices (Dale & Landers, 1999). All retired wrestlers that were interviewed are currently involved in coaching wrestling at some level. Findings may be different for retired wrestlers that are no longer involved in the sport. Importance of education on healthy weight control practices and eating habits was mentioned by most, and an emphasis on helping the sport of wrestling to move away from unhealthy practices was made by many. None of the habits mentioned by retired wrestlers suggest they

should be diagnosed as having an eating disorder or labeled as having disordered eating. However, some of them did feel that wrestlers who are not educated correctly or come out of poor programs that teach unhealthy practices are at risk of having difficulties managing their weight after their career is over.

### Summary

Wrestlers often began cutting weight in high school because they felt the lower weight class would give them some typed of advantage either on their own team or over an opponent. Resources for them regarding how to cut weight were typically their fathers, coaches, and other wrestlers. Many suggestions were educated and healthy, such as structured diets including good basic meals and increased workouts, however, there were some unhealthy suggestions. Both current and retired wrestlers reported the unhealthy suggestions being given when they were at a lower level of wrestling. Some of the retired wrestlers also reported these unhealthy techniques being used by wrestlers earlier in their careers and becoming less prevalent as the sport has evolved. Wrestlers reported changing their techniques after entering college due to the information being given by the coaching staff.

Wresters reported a gradual weight loss to get within range of their weight class and sometimes using more extreme "cutting" techniques 24-48 hours before a competition. These more extreme techniques consisted of dramatically cutting calories, fasting, and dehydrating. Techniques such as diuretics, enemas, or

vomiting were not reported. Wrestlers reported not using any weight cutting techniques when they were out of season. Many reported attempting to maintain a lifestyle of healthy eating to avoid gaining weight in the off-season but not controlling their portion size as much as they would in-season.

Wrestlers denied fitting the eating disorder description given and felt disordered eating was a better description. Wrestlers that had knowledge of eating disorders pointed out that their practices were due to extrinsic motivation. The psychological aspect of eating disorders did not seem to be found with any wrestlers interviewed. The only time wrestlers mentioned being self-conscious about their weight was before being involved in wrestling or before cutting weight. None of the wrestlers reported currently worrying about their weight or body image.

Wrestlers felt that disordered eating was more likely to occur than eating disorders in current wrestlers. They also felt both were more common in high school wrestlers than collegiate. Wrestlers opinions were split regarding the development of disordered eating and eating disorders in retired wrestlers. However, almost all wrestlers mentioned correct education as being the difference between high school and college as well as preventing the development of disorders in retired wrestlers.

#### Practical Implications

Education on correct weight loss and weight control techniques seems to be the most effective way to prevent the development of eating disorders and disordered eating in wrestling. The nature of wrestling and the use of weight

classes are not going to change. Therefore, clinicians and coaches can contribute to the health of their athletes by providing the best information available. Helping to guide athletes to make healthy nutrition choices will help them not only to excel in their sport but also to maintain a healthy lifestyle after their career has ended.

Repetition of correct nutrition and weight control techniques is just as important as providing the information. This is why the involvement of parents, middle school coaches, and high school coaches be involved in educating athletes. If healthy habits can be created at the age athletes enter the sport, athletes will be more likely to maintain them as they progress in their careers and outside of wrestling.

#### Future Research

Future research should include qualitative interviews with wrestlers at different levels of wrestling. Interviews should include questions regarding weight loss techniques, eating habits, type of information provided to them by their coaching staff, and the education they have received throughout their careers. More research should also be conducted with retired wrestlers who experienced different NCAA rules and regulations on weight cutting during their careers. Responses by older generations of wrestlers should be compared to current wrestlers or recently retired wrestlers. Future research should be done using qualitative interviews to further explain and evaluate the experiences.

## CONCLUSION

In conclusion, more disordered eating habits and weight loss techniques occur at lower levels. This appeared to be decreasing with better education for coaches and wrestlers. Disordered eating habits and extreme weight loss techniques were not commonly or consistently used amongst the group of wrestlers interviewed. Retired wrestlers current eating habits are different now compared to when they were competitive wrestlers. While retired wrestlers were aware of their body composition, attempted to eat healthy, and stay active, disordered eating habits and extreme weight loss techniques used during their careers did not seem to have any residual effects in regards to eating disorders.

In closing, the sport of wrestling is always going to have weight classes and wrestlers will continue to try and find ways to gain advantage over their opponents. The sport and wrestlers in general, however, continue to evolve and move towards more healthy practices. Specific comments indicate that this is due to changes in the NCAA regulations as well as better education of coaches and wrestlers, suggesting the NCAA has had an impact on these wrestlers. Results of this study support previous research that suggests wrestlers in general should not be considered as having eating disorders. This study also supports the theory that wrestlers are no more likely than other athletes to develop an eating disorder after their career is finished. Results should encourage athletic trainers and coaches to maintain their own education regarding healthy weight control techniques so that they can provide their athletes with correct information and guidance when cutting weight.

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## APPENDIX A

### EXTENDED RATIONALE AND PURPOSE



## EXTENDED RATIONAL AND PURPOSE

### Purpose

The purpose of this study was to investigate the development of and future impact of disordered eating habits and extreme weight loss techniques in current and retired collegiate wrestlers.

### Research Questions

1. How do wrestlers develop disordered eating habits and extreme weight loss techniques?
2. How do retired wrestlers describe their current eating habits?
3. How have retired wrestlers been effected by disordered eating habits and extreme weight loss techniques?

### Assumptions

1. Participants answered interview questions fully and honestly.
2. Participants understood the questions being asked in the interview.
3. The interview questions adequately tapped intended constructs and phenomenon.

### Limitations

1. Truthfulness of the respondents
2. Current wrestlers chosen represent Division I wrestling programs

### Delimitations

1. Only collegiate level wrestlers were recruited to participate.
2. Only redshirt freshman, transfer sophomores, juniors, seniors or fifth year seniors were recruited to participate.

### Definition of Terms

1. For this study eating disorders will be defined by the DSM
  - a. Anorexia Nervosa- Refusing to maintain a body weight that would be considered above or at the low end of normal weight based on the persons age and height, including restrictive and binge/purge subtypes.
  - b. Bulimia Nervosa- Occurrence of consuming large amounts of food in a short period of time, often with a sense of being out of control and unable to stop eating. This includes purging and non-purging types.
  - c. Eating Disorders Not Otherwise Specified- A diagnosis including people with significant disordered eating who do not meet all of the specific criteria for anorexia or bulimia nervosa. This includes Binge Eating Disorder (BED).
  - d. Anorexia Athletica- A diagnosis more applicable to athletes with many different criteria and combinations of disordered eating.
  - e. Cutting weight- The process of losing weight in order to be at a weight within the accepted range for a lower weight class in wrestling.

## APPENDIX B

### EXTENDED REVIEW OF LITERATURE

## EXTENDED REVIEW OF LITERATURE

### General Eating Disorder Background

Eating disorders are a common concern for the general public, especially with adolescent teenagers, however the difficulty with eating disorders is the diagnosis. Eating disorders have been classified into three different types, which can also be broken down further into sub-types. The development of this classification has been a process over many years. Diagnoses were originally based off of clinical observation and were then refined by expert opinion and the review of research (Grilo, Devlin, Cachelin & Yanovski, 1997).

The Diagnostic and Statistical Manual of Mental Disorders (First, Frances & Pincus, 2002; DSM, 2000) labels the three types of eating disorders as anorexia nervosa (AN), bulimia nervosa (BN) and eating disorder not otherwise specified (EDNOS). Diagnostic criteria for anorexia nervosa is described by the DSM as a person that refuses to maintain a body weight that would be considered above or at the low end of normal weight based on the person age and height. Anorexics also tend to have a phobia of weight gain and becoming fat despite being underweight. A person diagnosed with anorexia nervosa would also show signs of an altered body image, and refusal to recognize the danger and seriousness of their low weight. The last diagnostic criteria used by the DSM and probably the most controversial is amenorrhea. Amenorrhea is the absence of a women's menstrual cycle. This criterion is often considered problematic due to amenorrhea being irrelevant for prepubescent girls and men (Anderson, Bowers & Watson, 2001).

Different sub-types of anorexia nervosa have also been identified: restricting type and binge eating or purging type. Restricting type anorexia is explained as a patient who severely restricts caloric intake in order to lose weight. Binge eating or purging type anorexia nervosa is explained as a patient who regularly consumes large amounts of food and then uses self-induced vomiting, laxatives, enemas or diuretics to purge the food consumed, similar to bulimia nervosa (First et al., 2002; DSM, 2000).

Diagnostic criteria for bulimia nervosa set by the DSM (2000) is described as occurrence of consuming large amounts of food in a short period of time, often with a sense of being out of control and unable to stop eating. Following binges, a person suffering bulimia nervosa would self-induce vomit, use laxatives, enemas, diuretics, fasting or excessive exercise in order to prevent weight gain. For a person to be diagnosed with bulimia nervosa, the DSM requires that binge eating and purging occur at least two times per week for 3 months. Patients diagnosed with bulimia nervosa also show signs of an altered body image.

Similar to anorexia nervosa, bulimia nervosa has two sub-types: purging type and the non-purging type. Purging type bulimia nervosa is described by the DSM (2000) as a person who regularly uses self-inducing vomiting, laxatives, enemas or diuretics. Non-purging type is explained as someone who participates in fasting or excessive exercise, but does not self-induce vomit or use laxatives, enemas or diuretics regularly. These diagnoses are very confusing considering the similarity between criteria for anorexia nervosa. The diagnosis criteria for both anorexia and

bulimia nervosa are subjective, with some specific requirements such as amenorrhea needing to be present for a diagnosis of anorexia nervosa. Due to the similarities of symptoms and criteria for diagnosis of anorexia nervosa or bulimia nervosa, a third category of diagnosis has been adopted.

“Eating disorder not otherwise specified” (EDNOS) is the third diagnosis that includes people with significant disordered eating who do not meet all of the specific criteria for anorexia or bulimia nervosa (DSM, 2000). The DSM (2000) explains that females who meet the entire criterion for anorexia nervosa, but are not amenorrheic, would be diagnosed as EDNOS. Additionally, anyone who meets the criteria for anorexia nervosa, but their current weight is within the normal range despite significant weight loss, would also be diagnosed with EDNOS. An individual who meets the criteria for bulimia nervosa, but does not use disordered weight loss methods as often as two times a week for three months, or is within the normal body weight range EDNOS might be diagnosed. Other disordered eating habits that are grouped into the EDNOS category include: repeated chewing of large amounts of food without swallowing and binge eating without purging.

Due to the specific requirements for anorexia and bulimia nervosa, more patients are diagnosed with EDNOS (Wilfley, Bishop, Wilson & Agras, 2007). Fairburn et al. (2007) showed that out of 170 patients only 4.7% met the criteria for AN, 35.3% met the criteria for bulimia nervosa, and 60% for EDNOS. This shows that very few people fit the strict criteria for anorexia and bulimia, and it is more common for a person to receive a diagnosis of EDNOS. Many times a diagnosis of

EDNOS includes excessive exercise. Excessive exercise can be considered its own disorder and is often found with athletes (Eisler & Grange, 1989).

Excessive exercise has also been linked to eating disorders (Davis, Kennedy, Ravelski & Dionne, 1994). Davis et al. investigated if exercising initiates dieting, if current patients participated in competitive sport, if the amount of exercise was appropriate, and how weight loss was related to exercise participation. Results based on interview data showed that 70% of patients were physically active as children, more so than their peers, and before beginning to diet, 60% of the patients were involved in competitive sport, including dance, beyond intramurals and recreational levels. About 78% of patients exercised more than what would be considered a normal amount compared to other women of the same age. Additionally, 93% of patients observed their exercise routine as being obsessive, and 75% had increased their activity level during the time of their greatest weight loss and lowest food consumption.

When asked if exercise started before dieting, 60% of the participants reported exercising began before dieting, while 13% reported dieting and exercise being initiated at the same time (Davis et al., 1994). These percentages suggest that the relationship between excessive exercise and dieting is significant and exercise should be used as a predictor of disordered eating rather than a symptom.

Historically, excessive exercise has been considered a behavior associated with anorexia in order to lose weight (DSM-III). These results support the theory that people who participate in high levels of activity beginning at a young age may

possibly be more prone to developing dieting habits. Results showed that over 50% of patients interviewed participated in high levels of activity prior to dieting (Davis et al., 1994). However, the debate over which came first, excessive exercising or eating disorders continues.

Eisler and Le Grange (1990) mention the importance of viewing excessive exercise (EXE) as diagnostic rather than a behavior of anorexics. In order to better understand the relationship between excessive exercise and anorexia nervosa they attempted to clarify and categorize specific topics that are important to investigate. Eisler and Le Grange (1990) introduced two models that link excessive exercise and anorexia nervosa.

The first model discusses the significant amount of anorexia nervosa patients who report exercise as very important to maintain low weight (Eisler & Le Grange, 1990). The group referred to as "exercise anorexia nervosa" value exercise because it helps them to lose weight. However, Eisler and Le Grange (1990) explain that these patients when receiving treatment tend to be more concerned about the increase in food, rather than the decrease in exercise. Athletes who diet are at times incorrectly included in this group. This grouping is inaccurate because athletes care more for increasing performance than achieving a lean body type (Eisler & Le Grange, 1990).

The second model assumes that anorexia nervosa may be induced by high levels of activity or excessive exercise (Eisler & Le Grange, 1990). Szmukler and Tantam (1984) hypothesized that there are two different mechanisms for this to



happen. The first mechanism would be the development of an addiction to starvation. Szmukler and Tantam (1984) suggest that addiction to starvation is possibly a mechanisms leading to anorexia nervosa. This theory makes a connection between the extreme dieting that athletes sometimes use to increase performance and the eventual dependence to starvation leading to full blown anorexia nervosa (Eisler & Le Grange, 1990). The second mechanism is increased physical activity causing a similar effect of decreased food intake. This theory suggests that instead of restricting caloric intake a person might increase the amount of exercising creating the feeling of starvation. Epling, Pierce and Stefan (1983) suggest that the percentage of anorexia nervosa cases that may be related to or caused by high levels of activity are between 38-75%. These findings by Epling et al. (1983) suggest that people with high activity levels are at an increased risk of developing eating disorders may help give explanation as to why athletes are prone to eating disorders.

#### Eating Disorders in Athletes

Disordered eating habits in athletes are often times very hard to diagnose. Many times athletes do not fit the full description of anorexia nervosa or bulimia nervosa and are diagnosed with EDNOS. Also, excessive exercise may be seen as a contributing factor to athletes' disorders (Hildebrandt, 2005). As mentioned earlier some researchers such as Davis et al. (1994) suggest that excessive exercise leads to disordered eating rather than being a symptom. Therefore, the athlete's

environment may increase the risk of developing disordered eating habits (Davis et al., 1994; Taub & Benson, 1992).

Other contributing factors to the development of disordered eating habits described by Sundgot-Borgen and Torstveit (2010) include: an athlete's idea of the typical body type for their sport, the attempt to increase performance, and pressures from friends, teammates, parents and coaches. Also, athletes who are involved in specific types of sports may be at an increased risk of developing disordered eating habits. Sports that require high power to weight ratio, use weight classes, emphasize lean body type, or are considered aesthetic sports (Petrie, Greenleaf, Carter, & Reel, 2007; Griffin & Harris, 1996; Sundgot-Borgen & Torstveit, 2010).

Athletes need to maintain a high lean body mass low body fat mass ration in order to achieve optimal performance (Sundgot-Borgen & Torstveit, 2010). Sundgot-Borgen and Torstveit (2010) also mention previous research has shown that high fat mass requires higher energy demands, hence negatively effecting performance. This information is important to understand when evaluating causes for athletes to attempt dieting.

A large amount of research has focused on athletes and eating disorders, and has often shown inconsistent diagnoses of athletes with eating disorders (Baum, 2006; Hildebrandt, 2005; Lantz, Rhea, & Mesnier, 2004; Sundgot-Borgen & Torstveit, 2010; Taub & Benson, 1992). For example, Petrie et al. (2007) found only two athletes out of 199 that were classified with an eating disorder. Lantz et al.

(2004) found that athletes with high exercise identity tended to also have higher injury tolerance and more disordered eating behaviors. Athletes who begin dieting attempt to decrease their caloric intake to lose weight or body fat by using abnormal eating behaviors, but many times are not categorized as having an eating disorder. There is much difficulty when attempting to include athletes in the same category as non-athletes when diagnosing eating disorders. Perhaps athletes may be prone to developing disordered eating habits and unhealthy weight loss techniques rather than being prone to developing eating disorders.

In a second study, Petrie, Greenleaf, Reel, and Carter (2008) collected data from 203 male collegiate athletes, and found that none were classified as having an eating disorder and approximately 20% were considered symptomatic. Petrie et al. (2008) discuss the inconsistencies and possible limitations in determining the rate of male athletes diagnosed with eating disorders. Petrie et al. (2008) used a large and diverse sample of athletes from many different institutions to ensure a variety of subjects. This allowed the researchers to evaluate any relationships between specific demographic information and eating disorder classification such as age, sport type, and race. Athletes were categorized as symptomatic and asymptomatic however, no athletes were classified as having a clinical eating disorder (Petrie et al., 2008).

This seems to be the case in research attempting to determine if athletes have eating disorders. For example, Johnson, Powers, and Dick (1999) also found that none of the athletes, both male and female, from their study met the criteria for

anorexia nervosa and only 1.1% of females met the criteria for bulimia nervosa. Even using less strict criteria only .005% of male athletes had symptoms of bulimia nervosa (Johnson et al., 1999). However, Johnson et al. (1999) found that 9.5% of male athletes were considered *at risk* for anorexia nervosa and 38% were considered *at risk* for bulimia nervosa.

While the diagnosis of eating disorders in athletes is rare, there are new diagnoses that have been developed which encompass more of what athletes struggle with, such as anorexia athletica. The DSM-IV uses two sets of criteria to diagnose anorexia athletica. The first is a set of required criteria and includes: weight loss of greater than 5% expected body weight, gastrointestinal complaints, absence of medical illness or affective disorder explaining weight loss, excessive fear of becoming obese, and restriction of caloric intake. The second set requires that at least one of the criteria listed needs to be included in diagnosis: delayed puberty, disturbance in body image, use of purging methods, binge eating, compulsive exercising, and menstrual dysfunction.

Anorexia athletica is much more applicable to athletes because of the modifications that take into account differences between athletes and non-athletes environments (Hildebrandt, 2005). Specific factors present in an athletic environment such as training, specific or strict diets, and psychopathological profiles are some of the differences that anorexia athletica takes into account that other disorders do not (Hildebrandt, 2005). These factors are often seen in a

wrestling environment. Thus causing wrestlers to be more prone to developing disordered eating habits that mirror those of an eating disorder.

### Eating Disorders in Wrestlers

Research on eating disorders with wrestlers tends to be contradictory (Baum, 2006; Keller, Tolly & Reedson, 1994; Nitzke, Voichick, & Olson, 1992). The eating and weight loss practices of wrestlers continue to create suspicion of eating disorders or risk of developing eating disorders (Baum, 2006; Keller et al., 1994; Kordi, Ziaee, Rostami, & Wallace, 2011; Landers, Arent, & Lutz, 2001; Lakin, Steen, Oppliger, 1990; Oppliger, Steen, & Scott, 2003; Weissinger, Housh, Johnson, & Evans, 1991). Research has shown low percentages of wrestlers meeting the full criteria for being at risk of developing eating disorders (Dale & Landers, 1999; Opplinger, Landry, Foster & Lambrecht, 1993). For example, Oppliger et al. (1993) found only 1.7% of the 713 high school wrestlers responded consistently with the five DSM-III-R criteria. Perhaps wrestler's disordered eating habits are for the purpose of gaining and losing weight, and are not related to a feeling of guilt, loss of control or body dissatisfaction. Research has not been able to answer if wrestlers suffer from the psychological aspects of eating disorders (Dale & Landers, 1999).

Engle et al. (2003) discovered that when comparing the relationship of specific sports and disordered eating, wrestling was associated with increased food restriction along with gymnastics. However, when comparing attitudinal measures, wrestlers were significantly lower on both drive for thinness and body

dissatisfaction compared to other athletes. Engle et al. (2003) concluded that wrestlers' motivation for losing weight was external, in that assumed the extreme strategies used by wrestlers to lose weight was simply part of the demands of the sport.

The most commonly related eating disorder that is consistent with wrestling weight loss practices is bulimia nervosa (Dale & Landers, 1999). Dale and Landers (1999) recognize bulimia nervosa, as a psychiatric disorder, not just disordered eating. King (1989) discusses eating disorders within the general population and brings attention to the importance of determining if a person's behaviors are due to the demands of their occupation, or in this case the athlete's sport. Research has not examined the psychological and emotional aspect of eating disorders for wrestlers (Dale & Landers, 1999). Most research has focused on comparing wrestlers to non-wrestlers or non-athletes and attempting to determine wrestlers' future risk. Many studies use eating disorder inventories determine if an athlete has an eating disorder. Researchers recognize that there are limitations of eating disorder questionnaires in evaluating the psychological aspect of eating disorders when used independently (Dale & Landers, 1999).

As mentioned earlier, Lantz et al. (2004) suggested the exercise identity as a construct that plays a role in an athlete's behavior. This is an interesting concept to consider when evaluating the almost ritualistic behaviors involved in wrestling. Behaviors can be predicted based on specific role identities as well as reaffirm the athlete's identity (Lantz et al., 2004). The role identity the athlete chooses gives

purpose to behaviors. Lantz et al. (2004) uses ultra marathoners as an example when describing how behaviors, as well as lifestyles, may change. Behaviors include: increased training volume and intensity, dietary changes and the use of fitness apparel. This could be related to wrestlers with their increased workout intensity, duration, and frequency, as well as the use of saunas, weight loss supplements, and fluctuations in diet (Baum, 2006). Baum (2006) discusses how many of the behaviors wrestlers engage in are often considered ritual bonding amongst the team. Often, unhealthy behaviors are supported by both teammates and coaches (Baum, 2006).

Some of the extreme weight loss methods used by wrestlers include: increased exercise, food restriction, fluid restriction, dieting, fasting, dehydration using heated wrestling rooms or rubber/ plastic suits, diet pills, vomiting, laxatives and diuretics (Lakin et al., 1990). Nitzke et al. (1992) also reported restricting food intake (37%) and increasing exercise (22%) as the most common weight loss technique. Wrestlers also reported using a combination of five or more weight loss techniques (73%; Nitzke et al., 1992). Wrestlers were also questioned on the source of information on weight loss. The primary sources were the wrestlers coach (82%), teammates (77%), or former wrestlers (58%). Other sources were parents (57%) and physicians (42%; Lakin et al., 1990).

Perceptions of other teammates normative eating-related behaviors was another variable that Engle et al. (2003) found significant within their study. Engle et al. (2003) found patterns between athlete's eating behaviors and their

perceptions of their teammate's eating behaviors. One explanation is the actual behaviors of the team included disordered eating, and team members assumed that these behaviors are normal (Engle et al., 2003). The development of modeling and encouragement of disordered eating habits is often seen and discussed in athletics (Engle et al., 2003). Additionally, a false expectation could exist by athletes that their teammates are engaging in the same disordered eating behaviors when reality, teammates are not. Engle et al. (2003) suggested the use of structured interviews in future studies in order to help clarify many of these conflicting results.

Another example of conflicting opinions is the question as to whether wrestlers suffer from more than just disordered eating habits during their season. Dale and Landers (1999) suggested that due to the nature of sport the increased concern about body weight that wrestlers seem to have is not severe enough to be diagnosed with an eating disorder according to the DSM-IV criteria. Results suggest that wrestling does not increase the risk of bulimia nervosa and future research should focus on educating wrestlers on safe weight loss practices (Dale & Landers, 1999).

In contrast, Baum (2006) suggested that wrestlers, as well as jockeys and rowers, tend to incorporate disordered eating behaviors into their life outside of sport. Baum explains that the repeated abnormal practices and obsession with body weight and image become coping strategies for these athletes. This would suggest that wrestlers are at risk of developing eating disorders later in life. This continued disagreement suggests more research is needed for clarification. Another subject



needing clarification is to what extent coaches play a role in the development of an athletes disordered eating habits and extreme weight loss techniques.

### The Role of Coaches

Coaches are some of the most influential people for athletes. Often coaches are an athlete's main source of information and guidance. Kordi et al. (2011) found that 57% of wrestlers received information on cutting weight from their coaches. Weissinger et al. (1991) also found that wrestlers received the majority of their information about cutting weight from coaches, teammates, and parents. In these cases, the coach's perceptions on nutrition and correct weight loss techniques would have a significant impact on how wrestlers choose to manage their weight. Engel et al., (2003) discussed how coaching may play a role in an athlete's development of disordered eating habits or an eating disorder. Just like with any other aspect of sport coaches' comments, body language or actions can have a significant impact on how an athlete behaves and their beliefs about themselves or the sport (Engle et al., 2003).

Baum (2006) mentions a specific example reported by a wrestler in her study regarding a coach's influence on weight loss behaviors. Baum (2006) explains that a while a wrestler was in the process of purchasing laxatives with a teammate the coach witnessed this behavior and responded by turning and looking the other way. In this instance, the coach's non-response could be seen or perceived as approval.

Athletes use coaches as references when seeking information on nutrition and weight loss (Griffin & Harris, 1996). Griffin and Harris (1996) investigated coach's perceptions of weight, knowledge of nutrition and weight management, personal experiences with weight, and the recommendations given to athletes. Griffin and Harris found that 99% of coaches included in the study felt proper weight was important for performance. If coaches shared these thoughts with their athletes then this may cause athletes to adopt a similar opinion, and develop disordered weight control methods.

Coaches also thought it was important to be knowledgeable about nutrition, weight control, and eating disorders (Weissinger, Housh & Johnson, 1993). Coaches claimed to be most knowledgeable about nutrition, obesity, and weight control methods (Griffin & Harris, 1996). When asked about eating disorders, coaches admitted to be less knowledgeable. Coaches surveyed by Weissinger et al. (1993) also reported being very confident in their knowledge of weight loss methods.

While Griffin and Harris (1996) examined coaches perceptions in general athletics, Weissinger et al. (1993) focused more on wrestling coaches' perceptions at the high school level. Previous research suggests that extreme weight loss is often associated with winning in the high school setting (Baum, 2006; Griffin & Harris, 1996; Keller et al., 1994; Kordi et al., 2011; Weissinger et al., 1993; Weissinger et al., 1991). According to Weissinger et al. (1993) coaches disagreement about whether or not weight loss is harmless, and if too many wrestlers lose weight, or feel pressured to lose weight. A majority of the coaches in this study reported feeling

some wrestlers were cutting too much weight, and that the responsibility of regulating the amount of weight loss belongs to parents (Weissinger et al., 1993). However, when questioned about who decided the weight class a wrestler would compete, 51% reported the wrestler made the decision, 34% said the coach, and 4% reported the parents had the final say (Weissinger et al., 1993).

In regards to motivation, the majority of coaches surveyed by Weissinger et al. (1993) reported helping wrestlers plan weight loss (96%), some coaches gave wrestlers reminders (82%), others used teasing to motivate weight loss (41%), and 2% of coaches admitted to providing diuretics, and 1% provided laxatives. Coaches reported using their own past experiences as wrestlers when motivating and advising athletes (Weissinger et al., 1993).

When advising athletes on weight loss methods, coaches reported recommending methods that they perceived to be effective and the least dangerous. This is encouraging that coaches do not recommend weight loss methods they do not feel are appropriate for high school wrestler's. Coaches continue to support the notion that wrestlers make the final decision regarding weight loss rather than coaches or parents (Weissinger et al., 1993). Weissinger et al. (1993) suggested that the adults should be responsible for determining weight loss decisions, including the methods used. Weissinger et al. (1991) also suggested the level of immaturity in young wrestlers puts them at risk of self-harm when in control of weight loss decisions. Thus, coaches should probably take on this responsibility.

Keller et al. (1994) suggests that coaches and parents, as well as wrestlers, educate themselves more on the use and effects of weight loss methods. This study contradicts slightly what was early stated by Kordi et al. (2011) and Weissinger et al. (1993). Keller et al. (1994) suggested that coaches are not the main source of information, and that parents are more influential in controlling weight loss practices simply due to the amount of time spent with the wrestler. While this may be true with younger wrestlers, coaches are more likely to be looked up to more with adolescent and young adult athletes.

Disordered eating in athletes have continually been difficult to diagnose due to the unique environment of sports. Disordered eating in wrestling has shown to be even more complicated due to the sports reliance on weight classes and the extreme habits wrestlers adopt in order to maintain and loose weight. Where wrestlers are obtaining information on weight loss and nutrition has also been difficult to determine. When questioning coaches some have reported being responsible for guiding their wrestlers and others claim the responsibility should fall on the wrestler and their parents. It is important to attempt clarifying these contradictions in order to protect wrestlers from developing unhealthy lifestyles.

#### Purpose

Disordered eating is an important issue for athletic trainers, coaches, and parents to recognize early in order to get athletes help. According to previous research, athletes are more prone to developing disordered eating habits due to the sport environment (Davis, 1994; Taub & Benson, 1992). Some contributing factors

why athletes tend to be more prone to disordered eating include: athletes perceptions of the ideal body type for their sport, the constant attempt to increase performance, and added pressures from friends, teammates, parents, and coaches (Sundgot-Borgen & Torstveit, 2010). Sports that require athletes to maintain certain weights or fluctuate weights throughout the competitive season by requiring weight classes, such as wrestling and horse racing, are considered to be at even more risk of developing disordered eating habits. This is also true with aesthetic sports in which there is an artistic component and usually a tight fitting or revealing uniform, including wrestling, gymnastics, and swimming (Baum, 2006; Engle et al., 2003; Keller et al., 1994; Kordi et al., 2011; Lakin et al., 1990; Landers et al., 2001; Oppliger et al., 2003; Weissinger et al., 1991).

Many researchers have suggested that wrestlers are at risk of developing eating disorders due to the disordered eating habits and extreme weight loss technique many engage in (Lakin et al., 1990). While most wrestlers use disordered eating habits and extreme methods to lose weight for competitions very few have actually been diagnosed with an eating disorder (Dale & Landers, 1999; Opplinger et al., 1993). Some research has explained that this is due to a difference in the psychological reasoning behind the actions of wrestlers (Engle et al., 2003), in that wrestlers do not lose weight due to a drive for thinness or body dissatisfaction; wrestlers lose weight to compete at a specific weight class for the sport.

Some researchers have begun to examine the source of wrestlers information concerning weight loss and dieting. The common sources tend to be coaches, other

wrestlers, and parents (Baum, 2006; Engle et al., 2003; Griffin & Harris, 1996; Kordi et al., 2011; Weissinger et al., 1991). These studies included youth through collegiate level athletes. There have also been some questions regarding the age that wrestlers began cutting weight and developing disordered habits. Results show a wide range of ages and levels that weight loss is introduced to young wrestlers (Kordi et al., 2011). Being able to better understand the process of how a wrestler that practices disordered eating habits and extreme weight loss behaviors was introduced to these methods could help athletic trainers, coaches, and parents to be proactive in preventing unhealthy habits and encourage nutrition education.

Cutting weight has been described as a part of the sport of wrestling and sometimes considered a type of bonding between teammates (Baum, 2006; Engle et al., 2003). Researchers, such as Baum (2006), suggest that wrestlers who have developed and practiced these habits for so long will carry these unsafe habits over to life outside of the sport. The sport of wrestling is unlikely to change in the sense of athletes practicing in unhealthy habits to compete at a desired weight, however, promoting and teaching nutrition education consistently throughout a wrestler's career could possibly impact that athlete's choices regarding weight loss and eating habits once their wrestling career is finished.

While most research has focused on current wrestlers either having an eating disorder or developing one in the future, few studies have targeted retired wrestlers to evaluate whether or not their experience as collegiate wrestlers has impacted their lifestyle as a non-wrestler. This study includes retired wrestlers who

have been retired from wrestling for over a year. Interview questions focus on the retired wrestler's experiences as a wrestler, as well as their current eating habits. This was done to gain a better understand of the long lasting effects of disordered eating and extreme weight loss measures used in wrestling on a wrestler after their career.

The purpose of this study was to investigate the development of and future impact of disordered eating habits and extreme weight loss techniques in collegiate wrestlers and former collegiate wrestlers. This study evaluates current and retired collegiate wrestlers perspectives on disordered eating habits and extreme weight loss techniques, as well as any long-term effects of disordered eating and weight loss habits in retired collegiate wrestlers.

## APPENDIX C

### EXTENDED METHODS



## EXTENDED METHODS

### Participants

Wrestling participants were asked to complete background information questions including age, birth date, racial/ ethnic background, length of involvement in wrestling, weight class, current weight, and weight cycling status. Wrestling participants included current collegiate wrestlers and were in at least their second year of a collegiate program. Current wrestlers years of experience ranged from 7-15 years, with an average of 11.5 years. A total of 6 current wrestlers volunteered and participated. All current wrestlers had been high school state qualifiers; most had placed at state with multiple wrestlers having won the championship match at the state level.

Retired wrestlers were also recruited to participate. A total of 6 retired wrestlers who had competed at the collegiate level, and been retired for at least one year participated. Retired wrestlers ranged in age from 26-33 years. Retired wrestlers' years of experience ranged from 10-18 years, with an average of 14 years. All retired wrestlers were high school state qualifiers, most placed at state with multiple wrestlers having won the championship match at the state level. Five out of six retired wrestlers qualified for nationals at the collegiate level, with two of those wrestling in the championship match, and one of them winning a national championship.

### Role Of The Researcher

As a practicing athletic trainer, I have professional experience with wrestlers at the collegiate and high school levels. My personal views have developed through my experience as an athletic trainer as well as through personal relationships. I have been made aware of wrestlers' perceptions regarding eating disorders on both a personal level and a professional level.

### Measures

An interview schedule was used consisting of five sections: demographics, history of wrestling performance, early years of eating and cutting weight practices, high school years of eating and cutting weight practices, collegiate years of eating and cutting weight practices, and for former wrestlers, the current eating practices post collegiate career. These questions were developed to evaluate how, where and when wrestlers developed eating habits and weight loss techniques, as well as their awareness of eating disorders in the sport. Some questions varied for retired wrestlers to evaluate the current practices of former wrestlers after being removed from the sport. Follow up questions have been used as necessary.

### Procedures

Approval for this study was obtained from the IRB and the University of Northern Iowa. A pilot interview was conducted with two former wrestlers in order to clarify questions, wording, and relevance. The head wrestling coach was

contacted to request cooperation and participation in the study. An initial meeting was set up to invite current collegiate athletes to participate in the study, provide information about the study, and to distribute informed consent packets. Wrestlers interested in participating were asked to sign the informed consent and to provide contact information (e.g., cell phone number, email address) as well as days and times that worked well for them for the primary researcher to make contact and schedule a time for an interview.

In order to recruit former wrestlers via phone or e-mail, current athletes were asked for referrals as well as the use of the primary researchers personal contacts. Interviews were performed by phone for convenience and due to long distances.

Data collection began in October and was completed by April 2012. This time frame included, pre, during, and post wrestling season. At the recruitment meeting participants were reminded that participation was voluntary, they could choose to quit the study at any time, and all answers would remain anonymous. Wrestlers were explained the interview process. Interviews lasted approximately 15-30 minutes in length.

#### Data Analysis

A qualitative analysis was utilized to understand the development of disordered eating habits and extreme weight loss measures in current collegiate wrestlers as well as the future impact of these disordered habits on retired

collegiate wrestlers. Interviews were conducted using the interview schedule and were audio recorded. The interviews were then transcribed verbatim. Interviews were analyzed line by line in order to identify key information pertinent to the study's purpose. Concept labels were assigned and as categories emerged they were coded. For example, a comment made by Jason "We had a pretty stacked team so I just wanted to go to a weight that I thought that they would need me better at, than trying to beat out someone that's already got a good thing going" was coded as Motivation. These categories were examined and compared with one another using the constant comparative method. This comment made by Jason that fell into the category of Motivation was compared to other comments like one made by Brad, "I wanted to cut because I wanted to be the starter at 160 and I knew I could beat the guy there, but I couldn't beat the guy at 171." Relationships among categories like Motivation were further explored and examined for patterns. All data has been constantly reevaluated for discrepancies and similarities. Presentation of the results use of "cutting weight" is being used to represent the weight lost during 72 hours prior to competition or when used by the wrestlers being interviewed.

### Establishing Trustworthiness

In order to ensure trustworthiness of the data being collected, three specific strategies were used: peer reviews, member checks, and researcher journaling. First, the interview transcripts and coding have been presented to a peer who has more than 8 years experience in qualitative research. This helps to validate coding

reliability. Second, the primary researcher has presented the story line created to each participant via email for their verification. These member checks allowed participants to either verify that their words were being interpreted correctly or give them the opportunity to make corrections. Lastly, a researcher journal was used to record personal reflections or ideas the researcher had during interviews as well as any additions made to the interviews as they were being conducted. Journaling helped guide the research by bringing to light new thoughts and questions that helped with clarification of athletes responses.

## APPENDIX D

### PARTICIPANT MATERIALS

PARTICIPANT MATERIALS

UNIVERSITY OF NORTHERN IOWA  
HUMAN PARTICIPANTS REVIEW  
INFORMED CONSENT

**Title:**

Eating habits and weight loss techniques in collegiate wrestlers: A qualitative analysis.

**Principal Investigators:**

Jaime M Mayer, Windee M. Weiss, Ph.D.

**Introduction:**

You are invited to participate in a research project conducted through the University of Northern Iowa. The University requires that you give your signed agreement to participate in this project. The following information is provided to help you make an informed decision about whether or not to participate.

**Purpose:**

The purpose of this study is to investigate the development of and future impact of eating habits and weight loss techniques in collegiate wrestlers and former collegiate wrestlers. This study will evaluate current wrestlers and former collegiate wrestlers perspectives on eating habits and weight loss techniques and the long-term effects those habits.

**Procedures:**

I will meet with you twice. At the first meeting you will be asked a variety of questions during a one-on-one interview, regarding your experiences as a wrestler, your eating habits and your weight loss methods. This interview will be recorded for transcription purposes and once transcription is complete, it will be presented to you so that you can make any corrections necessary during the second meeting time. I ask that you be as honest and detailed as possible when answering questions.

**Discomfort and Risks:**

You may experience some psychological discomfort when answering questions about eating habits, weight loss measures, your weight, and your daily life.

**Benefits:**

There will be no benefits offered to participants.

**Confidentiality:**

Completed interviews will be assigned ID codes with no links made to personal identifiers and the ID code. Only the primary researchers will see your answers, and at no time will any participants answers be shared with any other participants, coaches, teammates or athletic trainers. All data and findings will be reported across all 20 participants.

**Right to Refuse or Withdraw:**

Your participation is completely voluntary; you may discontinue your participation at any time. Participation in this study will not affect your standing with the team, coach, or athletic trainer.

**Questions:**

If you have questions about the study or desire information in the future regarding your participation or the study generally, you can contact Jaime Mayer at (928) 821-3359 or Dr. Windee M. Weiss at (319) 273-2011. You can also contact the office of the IRB Administrator, University of Northern Iowa, at 319-273-6148, for answers to questions about rights of research participants and the participant review process.

**Agreement:**

**I am fully aware of the nature and extent of my participation in this project as stated above and the possible risks arising from it. I hereby agree to participate in this project. I acknowledge that I have received a copy of this consent statement. I am 18 years of age or older.**

---

(Signature of participant)

---

(Date)

---

(Printed name of participant)

---

(Signature of investigator)

---

(Date)

---

(Signature of instructor/advisor)

---

(Date)



(On back/ attached to Consent Form)

Contact Information:

\_\_\_\_\_  
(Phone Number)

\_\_\_\_\_  
(Secondary Phone Number)

Best Time:

\_\_\_\_\_  
(Day of the week)

\_\_\_\_\_  
(Time)

\_\_\_\_\_  
(Day of the week)

\_\_\_\_\_  
(Time)

\_\_\_\_\_  
(Day of the week)

\_\_\_\_\_  
(Time)

Most current weight class wrestled: \_\_\_\_\_

**Verbal/ Written Script: Coach**

Hi Coach \_\_\_\_\_, my name is Jaime Mayer. I'm a graduate student here at UNI in the Athletic Training department. I am currently researching the development of eating habits and weight loss methods in current wrestlers and any long-term effects on retired wrestlers for my thesis. I would like to recruit about 10 of your wrestlers that wrestle in some of the lower weight classes and consistently cut weight. They would also need to be at least sophomore status. I would like to schedule a meeting with your team to present to them the study and ask for volunteers. This meeting would only take about 15-20 minutes. Your help and cooperation would be greatly appreciated. The wrestlers that volunteer to participate in the study would be asked to sit for an interview with me. The interview will take about 1 hour to complete. Also, if you know of any retired collegiate wrestlers that would be interested in participating I would appreciate any referrals. No individual answers will be shared however the overall results of the study will be available to you. Thank you for your help.

**Verbal Script: Wrestlers**

Hi, my name is Jaime Mayer. I'm a graduate student in the Athletic Training department here at UNI. My master's thesis is on eating habits and weight loss methods in wrestlers. I am looking for about 10 volunteers that are at least sophomore status and cut weight during their season to interview about your experiences throughout your wrestling career. The interview would be with me and last approximately 1 hour. I would then schedule a follow up interview in order to confirm the transcription of your answers to the questions. This second meeting time will take anywhere from 15 minutes to 1 hour. The study is completely voluntary and you can stop at any time. All of the interviews are kept completely confidential. Your coaches, teammates and athletic trainers would only know about your participation in the study if you chose to share that information with them. I would really appreciate your help and participation.

**Verbal/Written Script: Retired Wrestlers**

Hello, my name is Jaime Mayer. I'm a graduate student in the Athletic Training department at UNI. I am doing my master's thesis on the long-term effects of eating habits and weight loss methods on retired wrestlers. I am looking for volunteers to participate in an interview with me that will last approximately 1 hour. I would then schedule a follow up interview in order to confirm the transcription of your answers to the questions. This second meeting time will take anywhere from 15 minutes to 1 hour. Your participation would be voluntary and you may leave the study at any time. All interviews are kept completely confidential. If you are interested in volunteering we would set up an interview time at the UNI campus. Your participation would be greatly appreciated.

**Verbal Script: Data Collection**

Thank you for volunteering for this study. I would like to remind you that your participation is voluntary and you may stop the interview at any time. Your answers to the interview questions will only be seen by the study investigators and no identifying information will be used in the results of this study. I am going to ask you a series of questions regarding your eating habits, weight loss methods and where you received your information for both. Please answer honestly and as detailed as you can. Do you have any questions before we begin? Lets begin the interview.

## INTERVIEW SCHEDULE

**Current Wrestlers:****Demographic**

- What is your current age?
- What is your wrestling eligibility?
- Are you currently injured?
- If you were to describe yourself based on race or ethnicity what would you say you are?

**History-Wrestling Performance:**

- How many years have you been wrestling?
- What age did you start wrestling?
  - Was it your idea or your parents?
- Did either of your parents wrestle?
  - If so at what level?
- Did you have any older siblings that wrestled?
- Overall how has your career gone?
  - Win loss record.

**Early Years/High School Eating and Cutting Weight Practices:**

- How did you do in high school?
  - Win/loss record
- Did you cut weight in High School?
  - Was it your idea or someone else's?
- Did anyone ever suggest to you that you should cut weight?
- Who gave you information about cutting weight?
  - How did they instruct you to cut weight?
- How old were you when you started cutting weight?
  - How much weight?

**Collegiate Years- Eating and Cutting Weight Practices:**

- How did you do this past season?
  - Win/loss record
- What weight class do you wrestle at currently?
  - Has it changed since you began college?
- How different is your weight when you are not in season?
- Did you consistently cut weight throughout your collegiate wrestling career?
  - Every season?
- How much do you feel your weight influences your performance?
  - Do you perform better at a certain weight?
  - Do you perform worse while cutting weight?

- How did you/ do you cut weight?
  - Do you fast, increase workout times, use laxatives or other measures?
  - How often do you use these measures?

**Current Practices:**

- What are your current eating habits?
- Do you feel these practices are healthy?
- Do you use these practices when you are not in season attempting to make weight?
- Do you worry about your weight outside of wrestling season?
- Do you put on weight during the off-season?
- Do you ever binge eat (eat to the point of being uncomfortable, having a feeling of being out of control).
  - After matches or tournaments?
  - During the off-season?
- Do you ever feel guilty after eating?
- Do you ever feel self-conscious about your weight?
  - What others will think
  - How you look to yourself
- What do you think of when someone brings up eating disorders?

Earlier you stated you used \_\_\_\_\_ to cut weight, eating disorders are described as a person using caloric restriction, fasting, increased workouts, self-induced vomiting, diuretics or enemas to lose weight.

- Based on this would you consider yourself to fit the eating disorder description?
  - Why or why not?

Disordered eating is considered to be any type of inconsistent eating such as missing meals frequently or binge eating to the point of being sick or uncomfortable.

- Based on this description would you consider yourself to have disordered eating?
  - Why or why not?
- How common do you think it is for wrestlers to have an eating disorder?
- How common do you think it is for wrestlers to have disordered eating?
- Is there anything you would like to include or you think would be important for me to know that I haven't already touched on?

**Retired Wrestlers:**

**Demographic**

- What is your age?
- What was the last year you wrestled at the collegiate level?
- Are you currently involved in wrestling now?

- Coaching?
  - Parent of a wrestler?
- Approximately what is your current weight?
- What weight class did you wrestle at?
- If you were to describe yourself based on race or ethnicity what would you say you are?

#### History-Wrestling Performance:

- How many years did you wrestle?
- What age did you start wrestling?
  - Was it your idea or your parents?
- Did either of your parents wrestle?
  - If so what level?
- Did you have any older siblings that wrestled?
- Overall how was your career?
  - Win loss record.

#### Early Years/High School Eating and Cutting Weight Practices:

- How did you do in high school?
  - Win/loss record
- Did you cut weight in High School?
  - Was it your idea or someone else's?
- Did anyone ever suggest to you that you should cut weight?
- Who gave you information about cutting weight?
- How old were you when you started cutting weight?
  - How much weight?

#### Collegiate Years- Eating and Cutting Weight Practices:

- How did you do your last season wrestling?
  - Win/loss record?
- What weight class did you wrestle at in college?
  - Did it changed during your years in college?
- How different was your weight when you were not in season?
- Did you consistently cut weight throughout your collegiate wrestling career?
  - Every season?
- How much do you feel your weight influenced your performance?
  - Do you feel you performed better at a certain weight?
  - Do you feel you performed worse while cutting weight?
- How did you/ do you cut weight?
  - Did you fast, increase workout times, use laxatives or other measures?
  - How often did you use these measures?



Current Practices:

- Do you still use any of the practices listed earlier to loose weight?
  - Fasting, increasing workout times, use laxatives or other measures
- Do you worry about your weight?
- What are your eating habits like?
- How do you maintain your weight?
  - Do you workout?
  - Do you use any other methods to maintain your weight?
- Do you ever binge eat (eat to the point of being uncomfortable, having a feeling of being out of control).
- Do you ever feel guilty after eating?
- What do you think of when someone brings up eating disorders?

Earlier you stated you used \_\_\_\_\_ to cut weight, eating disorders are described as a person using caloric restriction, fasting, increased workouts, self-induced vomiting, diuretics or enemas to lose weight.

- Based on this would you consider yourself to fit the eating disorder description?
  - Why or why not?

Disordered eating is considered to be any type of inconsistent eating such as missing meals frequently or binge eating to the point of being sick or uncomfortable.

- Based on this description would you consider yourself to have disordered eating?
  - Why or why not?
- How common do you think it is for wrestlers to have an eating disorder?
- How common do you think it is for wrestlers to have disordered eating?
- Is there anything you would like to include or you think would be important for me to know that I haven't already touched on?

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