

HOW PERFECT YOU'RE NOT:
STEREOTYPES OF FEMALE GYMNASTS

By

ALEXANDRA MARIE ROSS

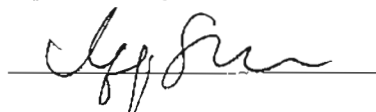
A Thesis Submitted to The Honors College
In Partial Fulfillment of the Bachelors degree
With Honors in

Psychology

THE UNIVERSITY OF ARIZONA

M A Y 2 0 1 1

Approved by:

A handwritten signature in black ink, appearing to read "Jeff Stone", is written over a horizontal line.

Dr. Jeff Stone

Department of Psychology

**The University of Arizona Electronic Theses and Dissertations
Reproduction and Distribution Rights Form**

Name (Last, First, Middle) <u>RUSS, Alexandra Marie</u>	
Degree title (eg BA, BS, BSE, BSB, BFA): <u>BA</u>	
Honors area (eg Molecular and Cellular Biology, English, Studio Art): <u>psychology</u>	
Date thesis submitted to Honors College: <u>May 4, 2011</u>	
Title of Honors thesis: <u>How Perfect You're Not: Stereotypes of Female Gymnasts</u>	
<p>The University of Arizona Library Release</p>	<p>I hereby grant to the University of Arizona Library the nonexclusive worldwide right to reproduce and distribute my dissertation or thesis and abstract (herein, the "licensed materials"), in whole or in part, in any and all media of distribution and in any format in existence now or developed in the future. I represent and warrant to the University of Arizona that the licensed materials are my original work, that I am the sole owner of all rights in and to the licensed materials, and that none of the licensed materials infringe or violate the rights of others. I further represent that I have obtained all necessary rights to permit the University of Arizona Library to reproduce and distribute any nonpublic third party software necessary to access, display, run or print my dissertation or thesis. I acknowledge that University of Arizona Library may elect not to distribute my dissertation or thesis in digital format if, in its reasonable judgment, it believes all such rights have not been secured.</p> <p>Signed: <u>Alexandra M. Russ</u></p> <p>Date: <u>5/4/11</u></p>

STATEMENT BY AUTHOR

This thesis has been submitted in partial fulfillment of requirements for a degree at The University of Arizona and is deposited in the University Library to be made available to borrowers under rules of the Library.

Signed: Alyson M. Pass

Abstract

Current research has shown that female gymnasts struggle to maintain normal eating habits. What is not evident is how this knowledge is being used to form beliefs about female gymnasts, particularly stereotypical beliefs regarding eating behavior. Beliefs concerning the prevalence of a small, thin body type and disordered eating habits are prevalent among gymnasts, their coaches, and their parents; however, there is no research that links the prevalence of these beliefs to the way coaches, administrators, and fans evaluate and interact with female gymnasts. The goals for this research were: First, to investigate the degree to which people hold negative stereotypes about female gymnasts as having obsessions about food, disordered eating behavior, and coping with eating disorders, and second, to examine how the eating disorder stereotypes people might hold about female gymnasts influence their perceptions of a gymnast's performance. Three groups of female participants (n=24 gymnasts, n=24 non-athletes, and n=68 non-gymnast athletes) between ages 18 and 22 viewed an image of either a thin or a fit female gymnast, read a mock news article reporting on a performance, and were then asked to rate the performance as well as complete a questionnaire targeting perceptions of body size and eating habits. Results did not support the initial hypothesis; however there was a significant difference in ratings of body size between the gymnast and the non-athlete participant groups, suggesting that female gymnasts view other female gymnasts as being thinner than non-athletes do.

How Perfect You're Not: Stereotypes of female gymnasts

Most people are aware of the fact that having a particular body type can provide athletes with an advantage for particular sports, such as being heavy and having lean muscle mass assisting in football play and being petite assisting with participating in gymnastics. What most people might not be aware of, however, are the psychological effects of maintaining these body images. The current study was guided by observations and careful research concerning female gymnasts, their body image satisfaction, and disordered eating behavior within the sport. Past research confirming recent observations of high levels of body image dissatisfaction among female gymnasts and observations that gymnasts tend to agree that disordered eating behavior is common within the sport lead to curiosity concerning the degree to which female gymnasts stereotype other female gymnasts as having disordered eating behavior.

Stereotypes about athletes

Race and Gender

Stereotypes are used as a way to categorize athletes and their performances. Past research has revealed several specific stereotypes that exist concerning athletes, leading to the conclusion that negative stereotypes are commonly used to explain the performance of minority athletes in the context of both race and gender. As it concerns race, White athletes are portrayed more intellectually than Black athletes are in the sport context, where White athletes success is attributed to their intelligence, and Black athletes success is attributed to their raw talent and athleticism. Success for Black athletes is stereotypically maximized in positions that require minimal thought (Eastman & Billings, 2001; McCarthy & Jones, 1997; Atkinson & Herro, 2010). Concerning gender stereotypes, women in the sport world are consistently compared to their male counterparts (Fredricks & Eccles, 2005; Hillard, 1984). Much attention is placed on

female athletes' physical appearance and emotionality, while male athletes are valued for being more powerful, independent, and muscular (Knight & Giuliano, 2001; Hillard, 1984). Female athletes' failures are commonly attributed to negative stereotypes, such as that many sports are masculine, thus females are simply not equipped to perform well in them. Along similar lines, their successes are attributed to the stereotype that a particular sport is "girly" or more feminine (Hillard, 1984).

Sport

There are very few studies that report stereotypes as it concerns specific sports. Several researchers (Chalabaev, Sarrazin, & Fontayne, 2009) have referred to the stereotype that girls are bad soccer players; however, in a sense this is also based on a preexisting gender stereotype that females cannot play sports well. There have been no conclusions made in the literature concerning other existing stereotypes of participants in specific sports; however, there is evidence that a stereotype might exist for cheerleaders. One study in particular reported female gymnasts and softball players' opinions of the "female/athlete paradox" (Ross & Shinew, 2008). In this study, the females were quoted defining the feminine prototype as, "the cheerleader type," who focused on their appearances, and also, "Very girly, with nails on and lipstick, who is probably like a cheerleader...". A study by Grindstaff & West also seemed to support these opinions of cheerleaders (2006).

Female athlete triad and aesthetic sports

There appears to be a growing interest in studying the psychological components and effects of sport participation on individuals. With the increase in female participation in athletics in the past few decades, there has been an increase in health concerns for female athletes. The "female athlete triad" has been identified by researchers as a concerning group of behaviors and

conditions that females in any sport are susceptible to, which includes osteoporosis, amenorrhea, and eating disorders (Thompson & Sherman, 2004). The identification of at-risk groups is essential for early diagnosis and prevention of the female athlete triad and its individual components, especially eating disorders and disordered eating behavior. Two factors have been identified in creating at-risk groups: being a female athlete (thus the name “female athlete triad”) and involvement in an aesthetic sport (Quatramoni, 2008). Aesthetic sports are those sports in which physical appearance is an integral part of the athletes’ performances and emphasis is placed on having a thin, lean frame, such as in dance, figure skating, and gymnastics. Research shows that females in aesthetic sports are particularly susceptible to developing eating disorders and disordered eating behavior because of the attention placed on their physical appearances (Panza, Coelho, Di Pietro, De Assis, & Vasconcelos, 2007). Females in aesthetic sports are more likely to report body image dissatisfaction, score higher on the Eating Disorder Inventory, and be diagnosed with a clinical eating disorder than athletes in non-aesthetic sports (Berry & Howe, 2000; O’Connor & Lewis, 1997; O’Connor, Lewis, & Kirchner, 1995; Sundgot-Borgen, 1994). Understanding the relationship between an athlete’s eating habits and the various patterns associated with the sport in question is necessary in order to establish guidance on this topic.

Female gymnasts and disordered eating behavior

Female athletes face the same social pressures that non-athlete females do to maintain a thin and physically fit body; however, in addition to this pressure, female athletes may face extra pressure from within their sport to maintain a specific, ideal body type (Byrne & McClean, 2002). Female gymnastics is among that group of sports that places an added emphasis on aesthetic appearance, encouraging females to maintain a small, thin frame, which has been shown to create body image dissatisfaction among these athletes (O’Connor & Lewis, 1997;

O'Connor et al., 1995). In a study of female collegiate gymnasts, Petrie (1993) found that despite reporting moderate body satisfaction on The Body Parts Satisfaction Scale and having a BMI in the low-to-healthy range, 50% of the gymnasts wanted to be at least 5 pounds lighter. Moreover, 61% of these women exhibited some sort of disordered eating symptoms as indicated by their scores on The Bulimia Test-Revised. In another study concerning female gymnasts, former elite gymnasts were interviewed about their retirement experiences (Kerr & Berman, & de Souza, 2006). Many of the former gymnasts reported a preoccupation with weight and body image, and reported that the emphasis on body size and weight was a constant stress while they were in the sport, and many continued to struggle in a battle over controlling their weight.

These concerns over weight and body image seem to be apparent to those in and around the sport of gymnastics. In the study mentioned above, Kerr et al. interviewed parents of current and former gymnasts, judges, coaches, and current and retired gymnasts on the topic of eating disorders within the sport. 34% of parents were concerned about their daughters eating patterns, specifically them eating too little. 35% of judges reported seeing unhealthy eating/weight control practices including self-induced vomiting. Further, 60% of judges believed they should play a role in preventing unhealthy practices, specifically by “affecting the judging system to reduce the emphasis on appearance”. 64% of coaches expressed concern over how gymnasts eat and control their weight, however it is interesting to note that their complaint was that the gymnasts ate too much junk food and processed fat foods. Also interesting to note is that 58% of coaches interviewed said they determined whether a gymnast needed to lose weight by visual appearance alone, further emphasizing the importance that appearance plays in judgments concerning gymnasts. In the current gymnasts’ interviews, the questions were related to the individual gymnasts eating habits instead of what they observed in the sport. 57% of current

gymnasts believed that they were heavier than what is considered ideal for a gymnast, reflecting the pressure from others for gymnasts to remain thin and lean. Related to this, retired gymnasts reported, “I don’t know if it’s possible to leave this sport without weight/shape issues.” Current gymnasts recommended that the coaches accept that “everyone has a different body” and to stop pressuring gymnasts to be small and skinny.

Noting the prevalence of eating disorders and disordered eating behavior within women’s gymnastics, and also noting the prevalence of knowledge about the existence of these behaviors within the sport, questions arise concerning whether people are using this information to help guide their judgments about female gymnasts. It is apparent that great emphasis is placed on the visual appearance of a gymnast and that the visual appearance of a gymnast can be used by others to make judgments about her. What is unclear, however, is if the knowledge and prevalence of the disordered eating behavior common among female gymnasts has contributed to the formation of a stereotype concerning female gymnasts and their eating habits, specifically that all female gymnasts struggle with disordered eating behavior or an eating disorder. Along with that, if such a stereotype does exist, it is unclear as to who would be more likely to allow it to guide their judgments. Many of those in and around women’s gymnastics are aware of the irregular eating patterns that are so common among gymnasts; however, literature is inconclusive as to whether people other than parents of gymnasts, coaches, judges, and gymnasts themselves are aware of the prevalence of disordered eating behavior within the sport.

The purpose of the current research is to understand the degree to which female gymnasts are stereotyped as having disordered eating behavior as well as to understand who is most likely to use this stereotype to make judgments concerning female gymnasts. Based on past research concerning the awareness among current and former gymnasts of disordered eating

behavior within the sport, our prediction is that female gymnasts stereotype other female gymnasts as having disordered eating behavior, which is reflected in a negative evaluation of a gymnast's performance. Those who do not participate in woman's gymnastics are not aware of the prevalence of disordered eating behavior among female gymnasts, and thus do not participate in stereotyping female gymnasts in this sense. Along with this, we predict that thinner gymnasts elicit this stereotype more strongly and that the stereotype is reflected by the perception of weakness and/or a poor performance.

Methods

Participants

Participants for this study consisted of three groups of females between the ages of 18 and 22. In the gymnast group were $n=24$ gymnasts, several of which were recruited from the University of Arizona women's gymnastics team, and the rest of which were from the University of Arizona undergraduate subject pool. The athlete group consisted of $n=68$ former athletes (no gymnasts or former gymnasts were included in this group) recruited from the University of Arizona undergraduate subject pool. The non-athlete group included $n=24$ non-athletes recruited from the University of Arizona undergraduate subject pool. The participants recruited from the undergraduate subject pool were rewarded with 1 credit toward the experimental requirement in a Psychology 101 class at the University of Arizona. Participants in the gymnast group from the University of Arizona women's gymnastics team volunteered to participate for no reward.

Procedure

Participants in the gymnast group from the University of Arizona women's gymnastics team were met at the gymnastics facility where they practice. The study was designed within the model for perceptual confirmation. The experimenter had the participants each choose an

envelope containing the image of the gymnast that they were going to view. The participants were then instructed to open the envelope and look at the image inside carefully (1.5 minutes) until the experimenter returned to the room. Immediately before the experimenter entered the participants' room (s), participants were instructed to turn the image facedown so that the experimenter would not be able to see the image when she entered. The experimenter then gave participants a packet with the article, a performance-rating sheet, and a questionnaire in it, and instructed them to read the article, and then refer to the article when filling out the performance rating and to refer the image and article if needed when filling out the questionnaire. At the end of the experiment, the experimenter debriefed the participants.

The procedure was the same for the participants in the gymnast, athlete, and non-athlete groups that were recruited from the University of Arizona Undergraduate Subject Pool aside for the fact that that they were met on the University of Arizona campus in a laboratory by the experimenter and that they received 1 experiment credit towards a requirement in a university psychology class at completion.

Independent variables

The perceived body size of each target was manipulated by presenting participants with an image of a female gymnast. The image was either of a thin gymnast (see Appendix A) or an athletic gymnast (see Appendix B). In order to determine which images to use, potential images of thin gymnasts and athletic gymnasts were rated by n=53 voluntary adults outside Westfield mall in Hawthorne Woods, Illinois and Best Buy in Mundelein, Illinois. Participants in the image pilot study viewed an image and then responded to several statements (e.g. This athlete maintains a normal body weight) by making ratings on likert scales concerning their perceptions of the gymnast's body size and eating habits. The two images chosen for use in this study were

the two images that received the highest and lowest ratings of perceived body size, where the image that received the highest ratings of thinness was chosen to be the thin gymnast image, and the image that received the lowest ratings of thinness was chosen to be the athletic gymnast image. A mock news article was created for the purpose of this study in order to report an ambiguous performance of a female gymnast at a competition (see appendix C). The article remained the same across both the thin gymnast and the athletic gymnast conditions.

Dependent variables

To determine if participants associated visual appearance with level of performance, participants were asked to rate the performance of the gymnast in the image on a scale of 0 to 10, with 0 being the worst and 10 being best (see appendix D). In order to measure perceptions of body size and eating habits, participants were asked to complete a questionnaire with 27 items (3 measuring body size and 9 measuring eating habits) (see appendix E). They were asked to rate how much they agree with each of a series of statements concerning the gymnast in the image on a scale of 1 to 5, where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree. Perceptions of body size were measured by statements such as, “The gymnast in the picture is fit/in shape,” and, “The gymnast in the picture is unhealthily thin.” A direct rating of perceived body size was also taken on a scale of 1 to 10, with 1 being unhealthily thin and 10 being unhealthily obese. Statements such as, “The gymnast in the picture worries about controlling what she eats,” and “The gymnast in the image is a frequent dieter,” targeted perceptions of eating habits.

Results

Perceptions of performance were analyzed using a 2 (condition) X 3 (group) between-groups ANOVA. The analysis of the effect of the participant’s group on ratings of performance

revealed no significant results, $F(2, 110)=2.41$, $p=0.095$. Analysis of the effect of the condition (thin or fit gymnast) revealed no significant results, $F(1, 110)=0.23$, $p=0.63$. Analysis of the interaction also revealed no significant results, $F(2, 110)=0.71$, $p=0.45$. Participants in all the groups rated the performance of the gymnast in the image moderately regardless of condition, where participant in the non-athlete group rated performance the lowest ($M=7.44$), participants in the gymnast group rated performance the highest ($M=7.67$), and participants in the athlete group rated performance in the middle of the other groups ($M=7.64$) (see Fig. 1).

Perceptions of eating habits were analyzed using a 2 X 3 between-groups ANOVA. The analysis of the effect of participant group membership on perceptions of eating habits yielded no significant results, $F(2, 110)=2.16$, $p=0.12$. Analysis of the effect of condition on perceptions of eating habits showed no significant results, $F(1, 110)=2.22$, $p=0.14$. Analysis of the interaction showed no significant results, $F(2, 110)=0.10$, $p=0.90$. Participants in all groups rated the eating habits of the gymnast in the image as being unhealthy regardless of condition, where participants in the non-athlete group rated eating habits the least unhealthy ($M=3.18$), participants in the gymnast group rated eating habits the most unhealthy ($M=2.88$), and participants in the athlete group falling in the middle ($M=3.10$) (see Fig. 1).

Finally, perceptions of body size were analyzed using a 2 X 3 between-groups ANOVA. The analysis of the effect of the participant's group on perceptions of body size revealed significant results, $F(2, 110)=3.27$, $p < 0.05$. Participants in the gymnast group ($M=3.23$) rated the body size of the gymnast in the image significantly lower than participants in the non-athlete group ($M=3.75$) did (regardless of condition) (see Fig. 1). There were no significant results between the athlete group ($M=3.51$) and any of the other two groups. Analysis of the effect of

condition on perceptions of body size revealed no significant results, $F(2, 110)=0.02$, $p=0.90$.

Analysis of the interaction also showed no significant results, $F(2, 110)=0.25$, $p=0.78$.

Discussion

The overall data collected for this study did not support the initial hypothesis. There was no evidence in the data that viewing an image of a thin vs. fit female gymnast had any significant influence on perceptions of the performance of the gymnast, providing no evidence for an existing stereotype concerning female gymnasts and disordered eating habits. The data suggested, however, that group membership, not the image of a thin or fit female gymnast, was largely responsible for observed differences in perceptions of performance, eating habits, and body size.

When analyzed on the group level, the data collected on perceptions of performance revealed an observable, though not significant, difference between the ratings from the non-athlete group and the gymnast group. Female gymnasts appear to have rated the gymnast in the image, regardless of body size, as having a better performance than did the other female athletes, and the non-athletes rated the performance the lowest, thus the greatest difference being between the gymnast group and the non-athlete group. This is interesting in relation with the results from analyses of perceptions of eating habits and body size. When comparing group perceptions of eating habits, while there was no significant data supporting the assumption that female gymnasts judge other female gymnasts as having disordered/poor eating habits as compared to other female athletes and non-athletes, there is a downward, linear trend from non-athletes to athletes to gymnasts, where gymnasts rated the eating habits of the gymnast in the image observably lower than did the athletes and the non-athletes. Also, when comparing group perceptions of body size, not only is there an observable difference, but there is also a significant

difference between perceptions of thinness in participants in the gymnast group and participants in the non-athlete group, with participants from the athlete group falling in the middle. Female gymnasts rated the gymnasts' body size(s) as significantly thinner than non-athletes did. This makes way for an inference regarding the "female gymnast prototype" that young girls and women are taught. Considering the data just explained, it is worth asking whether female gymnasts are trained to see fellow female gymnasts, as well as themselves, as being very small and thin, to think that eating habits that are considered disordered are actually normal (at least for the sport), to accept these ideas, and to think that encompassing and embodying them actually produce a better gymnast, or in other terms a better performance.

One concern regarding the ratings of performance hinders this inference from being made, and acts as a potential limitation to this study. We asked participants to rate the performance of a gymnast on a scale of 0-10 because gymnasts are always striving for a "perfect 10," a sports reference with which most people are familiar. However, when making a rating on a scale of 0-10, a 7/10 might seem good, maybe even close to great, for the average non-athlete if they are not thinking about gymnastics scoring. Concerning the ratings of the gymnast group, when gymnasts are asked to rate the score of another gymnast's performance, more than likely she is going to be thinking in terms of the gymnastics scoring she is/was very familiar with. Seeing that the averages of the non-athlete and gymnast groups' performance ratings were non-athletes=7.44 and gymnasts=7.97, it is worth considering that these observed differences could be due to differences in interpretation of the numbers on the scale between the groups, and not because the gymnasts actually thought that the performance was any better than the non-athletes did. On the topic of construct validity, it is important to discuss the images used in the study for the thin and fit gymnast. Though the images were piloted for perceptions of thinness, the age of

the participants was only roughly controlled for and did not directly match the age group of the participants used for this study. Thus, it is possible that the ratings of the images of the gymnasts were influenced by factors not controlled for, and it is possible that the images were not accurately depicting a thin and/or a fit gymnast. Two other limitations to this study were a low n for several, but not all, of the groups, and an uneven distribution of participants in the two conditions within groups. The athlete group ($n=68$) was just almost three times as large as the non-athlete group ($n=24$) and the gymnast group ($n=24$), thus possibly creating an uneven weight of the perceptions of the athlete participants with the perceptions of the other two groups. Also, the distribution within groups between the two conditions (fit/thin gymnast image) was poorly controlled. There were ten more participants who viewed the thin gymnast image over the fit gymnast image in the non-athlete and athlete groups, and there were four less participants who viewed the thin gymnast image over the fit gymnast image in the gymnast group. Future research should expand the overall number of participants, create an equal number of participants in each group, and control construct validity more carefully.

The inferences that can be made from this study should inspire inquiries for expanding this research in the future. One factor that seemed to stand out was the low ratings of body size given by participants in the gymnast group as compared to non-athlete participants. Another less significant factor was the low ratings of eating habits that participants in the gymnast group gave, taken alone and as compared to the non-athlete group. The current research has not yet revealed any differences in the way that gymnasts perceive themselves as compared to the way that others view female gymnasts as outsiders to the sport. Future research would be beneficial in answering questions such as this. Another direction for future research involves asking questions concerning perceptions of female gymnasts as compared with other female athletes. The current

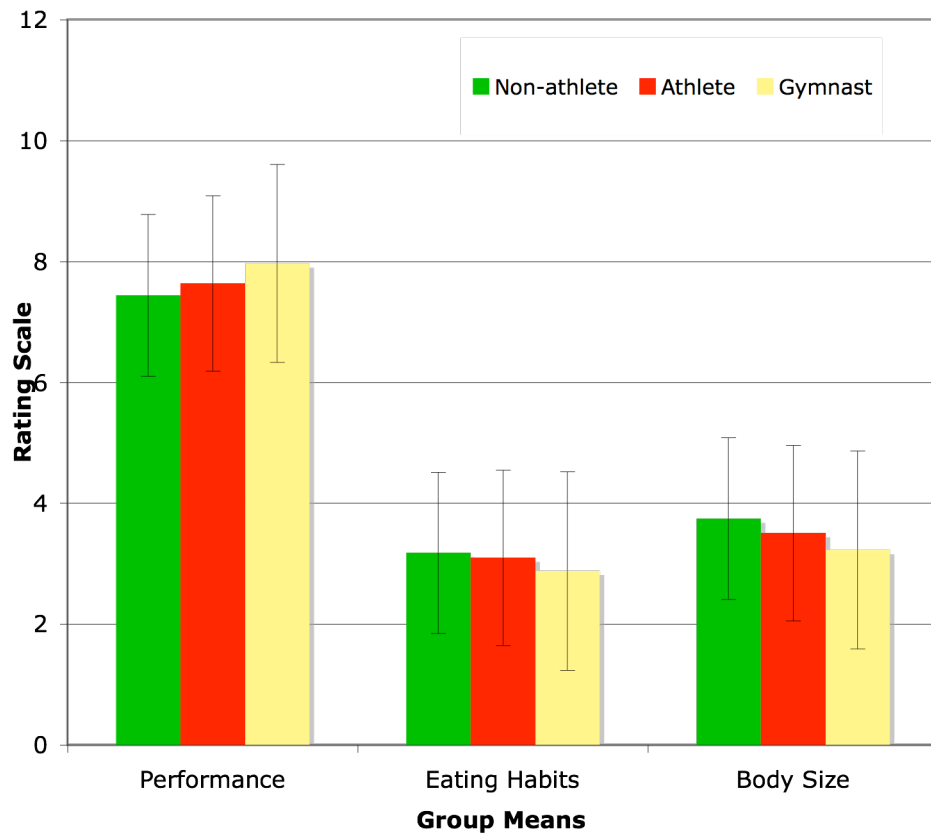
study suggests that there is no significant effect of a thin- vs. a fit-looking gymnast on perceptions of eating habits. Future research could then compare perceptions of eating habits based on viewing any image of a female gymnast with perceptions based on viewing an image of a female athlete from other sports.

Finally, the results of this study have implications concerning how female gymnasts view other female gymnasts as compared to how non-athletes view gymnasts. The data supports the idea that female gymnasts view each other as being very thin, whereas those who are not athletes view female gymnasts as being thin, but not quite as unhealthily thin as gymnasts do. This implies that the public expects gymnasts to be small, so when a gymnast is very thin it might not stand out as a warning sign of an eating disorder to those outside her teammates and possibly her coach. Current research already has revealed the prevalence of disordered eating behavior within female gymnastics, it is important that this research continues to be disseminated to the general public in order to prevent young girls and women from becoming victims of such behaviors.

Reference List

- Atkinson, J. L., Herro, S. K. (2010). From the chartreuse kid to the wise old gnome of tennis: age
sts as frames describing andre agassi at the U.S. Open. *Journal of Sport and Social Issues*
34(1), 6-104.
- Berry, T. R., & Howe, B. L. (2000). Risk factors for disordered eating in female university
athletes. *Journal of Sport Behavior*, 23, 207-218.
- Byrne, S., & McLean, N. (2002). Elite athletes: Effects of the pressure to be thin. *Journal of*
Science and Medicine in Sport, 5(2), 80-94.
- Chalabaev, A., Sarrazin, P., Fontayne, P. (2009). Stereotype endorsement and perceived ability
as mediators of the girls' gender orientation-soccer performance relationship. *Psychology*
of Sport and Exercise, 10(2), 297-299.
- Eastman, S., & Billings, A. (2001). Biased voices of sports: Racial and gender stereotyping in
college basketball announcing. *The Howard Journal of Communications*, 12, 183-201.
- Fredricks, J. A., & Eccles, J. S. (2005). Family socialization, gender, and sport motivation and
involvement, *Journal of Sport & Exercise Psychology* 27, 3-31.
- Grindstaff, L., & West, E. Cheerleading and the Gendered Politics of Sport. (2006). *Social*
Problems, 53(4), 500-518.
- Hillard, D.C. (1984). Media Images of Male and Female Professional Athletes: An Interpretive
analysis of magazine articles. *Sociology of Sport Journal*, 1, 251-62.
- Kerr, G., Berman, E., & de Souza, M. J. (2006). Disordered eating in women's gymnastics:
Perspectives of athletes, coaches, parents, and judges. *Journal of Applied Sport*
Psychology, 18(1), 28-43.
- Knight, J.J. and Giuliano, T.A. (2001). He's a Laker; She's a "Looker": The Consequences of

- gender stereotypical portrayals of male and female athletes by the print media. *Sex Roles*, 45, 217-29.
- McCarthy, D. & Jones, R. L. (1997). Speed, aggression, strength, and tactical naivete. *Journal of Sport & Social Issues*, 21, 348-362.
- O'Connor, P. J., & Lewis, R. J. (1997). Physical and emotional problems of elite female gymnasts. *New England Journal of Medicine*, 336(2), 140-142.
- O'Connor, P. J., Lewis, R. J., & Kirchner, E. M. (1995). Eating disorder symptoms in female college gymnasts. *Medicine and Science in Sports Exercise*, 27, 550-555.
- Panza, V. P., Coelho, M. S. P. H., Di Pietro, P. F., De Assis, M. A. A., & Vasconcelos, F. A. G. (2007). Athletes' food intake: Reflections on nutritional recommendations, food habits and methods for assessing energy expenditure and energy intake. *Brazilian Journal of Nutrition*, 20(6), 681-692.
- Petrie, T. A. (1993). Disordered eating in female collegiate gymnasts: Prevalence and personality/ attitudinal correlates. *Journal of Sport & Exercise Psychology*, 15, 424-436.
- Quatromoni, P.A. (2008). Clinical observation from nutrition services in college athletics. *Journal of the American Dietetic Association*, 108(4), 689-694.
- Ross, S. R., Shinew, K. J. (2008). Perspectives of women college athletes on sport and gender. *Sex Roles* 58, 40-57.
- Sundgot-Borgen, J. (1994). Risk and trigger factors for the development of eating disorders in female elite athlete. *Medicine and Science in Sports and Exercise*, 26, 414-419.
- Sherman, R. T., & Thompson, R. A. (2004). The female athlete triad. *The Journal of School Nursing*, 20(4), 197-202.

FIGURE 1**Group Means of Perceptions of Performance, Eating Habits, and Body Size**

Performance rating scale 0-10, with 0 being worst and 10 being best; Eating habits rating scale 1-5, with 1 being abnormal and 5 being normal; Body size rating scale 1-5, with 1 being unhealthily thin and 5 being healthy.

APPENDIX A

Thin Gymnast Image



APPENDIX B

Fit Gymnast Image



APPENDIX C

Mock Article Reporting the Performance of a Gymnast at a Competition

17 year-old Amanda Zider performs at IGI Invitational

With the encouragement of her team, Amanda Zider of Chicago, Illinois tackled what she considers her most nerve-wracking event this weekend: the balance beam. Mandy, as her teammates call her, is a 17 year-old gymnast who works out at a local Chicago gymnastics club. She says, "Gymnastics is what makes me tick. It shapes me as a person and teaches me very important lessons. I love it!"

Mandy and her team have been practicing diligently for the past several weeks to prepare for the Illinois Gymnastics Institute's annual Navy Pier Classic competition, and this past weekend they got to see the fruits of their labor. The competition gyms were bursting with young talent and supportive fans all weekend. When asked what event she was most nervous about, Mandy responded, "Beam, of course! But I've been trying to train myself harder than ever so hopefully I will do well."

The competition proved a challenge, but there was no giving up here! Mandy competed on all four events, beginning on floor, then vault, uneven bars, and ending on beam. She opened with a strong round-off, back-handspring, layout 2 ½ twist on the floor exercise, starting the meet off on a good note. On vault, her yerchenko-full twisting layout got the job done. Mandy had a minor slip up on bars when her hand slipped on her straddle-back release move, but she recovered with a stuck landing. After the last event, beam, we asked Mandy how she thought she did in her routine.

"Before my major tumbling pass, I could hear my teammates cheering, 'Go Mandy!' That psyched me up. I don't really remember the back-handspring layout-stepout, layout step-out pass, I just remember trying to be clean throughout the middle section. I'm not sure if I was or not, but I tried. On the press handstand, as I pressed up and grabbed the beam with my fingers, I felt myself wobble and I told myself, *Ok, hold this*. As soon as I held that I could focus all my energy on sticking the landing. Even though I almost lost my footing there at the end, I still finished the routine."

Mandy is looking forward to returning to the gym this week to improve on the areas in which she sees weakness, she told us. She says that she is going to work especially hard on her release move on bars and increasing her difficulty on beam for her next competition in three weeks.

APPENDIX D

Performance Rating Sheet

On a scale of 0 to 10, with 0 being the lowest and 10 being the highest possible score, what do you think the score of this gymnast's balance beam performance is going to be?

0	1	2	3	4	5	6	7	8	9	10
lowest										highest

APPENDIX E

Questionnaire Targeting Perceptions of Eating Habits and Body Size

(Note: Statements in **BOLD** target perceptions of body size, statements in *ITALICS* target perceptions of eating habits.)

The purpose of this research is to investigate people's perceptions of female athletes.

Please note: All of your responses are anonymous and confidential; none of the information that you provide today will be linked in any way with your personal identity. We guarantee complete confidentiality so that you can respond to these materials as honestly and openly as possible. If you have questions about any of the materials please ask the research assistant.

Please read each of the statements below. You may refer to the image from the envelope if necessary. On the line next to each statement, write the number which best corresponds with your opinion of the statement, where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree. Once you are finished with the survey, please let the experimenter know that you are done.

1. The gymnast in the picture is a talented athlete. _____
2. The gymnast in the picture is strong. _____
3. The gymnast in the picture is healthy. _____
4. *The gymnast in the picture worries about controlling what she eats.* _____
5. *The gymnast in the picture eats well.* _____
6. The gymnast in the picture is a good teammate. _____
7. The gymnast in the picture has supportive parents. _____
8. *The gymnast in the picture worries about what others think of her body size.* _____
9. *The gymnast in the picture is not concerned about her weight.* _____
10. The gymnast in the picture has been a gymnast for most of her life. _____
11. The gymnast in the picture is dedicated to her sport. _____
12. The gymnast in the picture compares herself to others often. _____
13. The gymnast in the picture respects her coach. _____

14. *The gymnast in the picture has healthy eating habits.* _____

15. The gymnast in the picture is one of the best gymnasts on her team. _____

16. The gymnast in the picture works very hard. _____

17. *The gymnast in the picture worries about controlling what she eats.* _____

18. *The gymnast in the picture has unhealthy eating habits.* _____

19. The gymnast in the picture is unhealthily thin. _____

20. The gymnast in the picture is a good friend. _____

21. *The gymnast in the picture is a frequent dieter.* _____

22. The gymnast in the picture has won many awards for her gymnastics. _____

23. The gymnast in the picture is a weak gymnast. _____

24. *The gymnast in the picture has a healthy body weight.* _____

25. The gymnast in the picture is fit/in shape. _____

26. The shape of this gymnast's body makes her a better gymnast. _____

(27.) Please rate your perception of this gymnast's body size:

1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ 9 _____ 10
unhealthily thin unhealthily obese

Did you recognize the gymnast in the image? _____

If yes, who do you think it is? _____

Do you have any friends or family members who participate in gymnastics? If yes, please list their relation to you. _____