

Body Project Implementation in Virginia Tech Athletics:
Effect on Body Image Satisfaction and Thin Idealization in Female Athletes

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Abstract

Eating disorders and disordered eating have a prevalence of 6% to 45% in collegiate female athletes (Knapp, Aerni, & Anderson, 2014). Thin idealization and body image dissatisfaction are risk factors for the development of disordered eating and eating disorders. Dissonance-based prevention programs have been shown to be effective in reducing thin idealization and body image dissatisfaction, as well as lessening risk of developing disordered eating and eating disorders. Currently, Virginia Tech Athletics does not utilize a group-based eating disorder prevention program for its female athletes. The purpose of this pilot project was to administer the *Body Project*, a dissonance-based prevention program aimed at reducing thin idealization and body image dissatisfaction, to female swimmers at Virginia Tech and evaluate the program's effect on thin idealization and body image dissatisfaction. Thin idealization and body image dissatisfaction were evaluated via the Body Parts Satisfaction Survey-Revised (BPSS-R) and the Ideal Body Stereotype Survey-Revised (IBSS-R), respectively, before and after completion of the *Body Project*. Ten female swimmers, without current eating disorders, volunteered to participate, and nine swimmers (19.44 ± 1.42 years old; 5 freshmen, 2 juniors, and 2 seniors) completed the full project. Sixty-seven percent of participants (6 out of 9) experienced a reduction in their subscription to thin-ideal internalization (IBSS-R 2.96 ± 0.92 pre, 1.85 ± 0.88 post, $p < 0.05$), while 78% of participants (7 out of 9) experienced an increase in body satisfaction

(BPSS-R 4.42 ± 1.35 pre, 5.08 ± 0.90 post, $p < 0.05$, $p < 0.05$). The findings of this pilot project suggest that the *Body Project* is an effective tool to influence subscription to thin-ideal internalization and body satisfaction in female college athletes. Continued effort to refine and implement the *Body Project* as group-based eating disorder prevention program for female college athletes is needed.

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Introduction and Purpose

Young, adolescent females are a population prone to developing body image dissatisfaction and eating disorders (Voelker, Petrie, & Chandran, 2019). Adolescent female athletes are especially at risk (Voelker et al., 2019). Current data shows that 13% of females suffer from a Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) diagnosed eating disorder, or less-severe disordered eating (Stice, Marti, Shaw, & Rohde, 2019), and 50% of American women express some kind of body dissatisfaction (Gaines & Burnett, 2014).

The National Eating Disorders Association (NEDA) defines body image as, "...one's thoughts, perceptions, and attitudes about their physical appearance (National Eating Disorders Association, 2018), and body dissatisfaction is one of the most robust eating disorder risk factors (Becker & Stice, 2017). Knapp, Aerni, and Anderson (2014) state that female athletes have a higher risk of developing eating disorders and disordered eating. They also specify that there is a range of 6% to 45% who suffer from clinical eating disorders, and 20%-62% suffer from disordered eating. This range may be due to the fact that different sports have an ideal body image that is associated with improved performance (Knapp, Aerni, & Anderson, 2014). In addition, athletes experience body dissatisfaction as a result of both societal pressures, as well as sport-specific pressures (Kantanista et al., 2018).

There is not one risk factor that results in young females developing eating disorders, but rather a multitude of risk factors. Female athletes are susceptible to the same risk factors as non-athletes, and potentially additional risk factors from their sport (Becker, McDaniel, Bull, Powell, & McIntyre, 2012). The belief that a smaller body size means increased performance, as well as a perfectionistic attitude, are both factors that many female athletes experience (Reinking &

Alexander, 2005). This may result from comments made by parents or coaches, the language teammates use regarding weight in their sport, or the culture of their sport, in general.

Those who participate in “lean sports” (ie. gymnastics, dance, swimming, diving, and distance running) tend to report higher levels of body dissatisfaction (Kantanista et al., 2018), as aesthetics are highly involved in these sports through judging, revealing uniforms, or both. Reinking and Alexander (2005) also found that athletes in these lean sports show greater disordered eating symptoms than those in non-lean sports and non-athletes. Virginia Tech Athletics has many female athletes in various lean sports (Swimming and Diving, Dance, Cheer, Track & Field, Cross Country, etc.), so it is important that promotion of positive body image occurs to aid in the prevention of the development of eating disorders (Gaines & Burnett, 2014).

Considering the prevalence of body dissatisfaction, eating disorders, and disordered eating among athletes, interventions to improve body image and promote healthy eating patterns are needed. Dissonance-based eating disorder prevention programs, like the *Body Project* (www.bodyprojectsupport.org), have been shown to be effective in helping young females unsubscribe from unrealistic body ideals, and, in turn, decrease the incidence of disordered eating development (Stice, Marti, Shaw, & Rohde, 2019). Cognitive dissonance occurs when there are inconsistent beliefs, actions, or attitudes, and under cognitive dissonance theory, the discomfort that is caused by cognitive dissonance is only restored when these beliefs, actions, and/or attitudes are altered (Becker, Smith, & Ciao, 2006). The purpose of this project was to implement The *Body Project* with a group of female athletes and to evaluate the impact on thin-ideal internalization and body dissatisfaction.

I. Literature Review

Description of the *Body Project*

The purpose of the following review of literature is to describe the *Body Project* and its efficacy in influencing body image, eating disorder pathology, and body dissatisfaction. Prior to 16 years ago, evidence-based eating disorder prevention programs were lacking, and there were no programs that resulted in significant eating disorder symptom reductions (Becker & Stice, 2019). According to Becker & Stice (2019), research and development of the *Body Project* began in the 1990s, and the initial trials occurred from 2000-2003. The first 3 independent replication trials occurred from 2004-2005, and a large-scale efficacy trial occurred from 2006-2008. Starting in 2006 (through 2010), were peer leader trials, and the peer leader replication trials occurred from 2013-2016.

The *Body Project* is a small group-based, dissonance-based eating disorder prevention program that has participants critique the thin-ideal through verbal, written, and behavioral exercises. In these exercises, cognitive dissonance is created, leading to reduced subscription to the thin ideal (Stice, Becker, & Yokum, 2013). Cognitive dissonance theory was developed by Leon Festinger, an American social psychologist, in 1957. Under Cognitive Dissonance Theory, an individual who holds two conflicting cognitions (ie. thoughts, beliefs, attitudes) will experience unpleasant feelings of dissonance, and, therefore, act to reduce or rid that dissonance (Festinger, 1957). There are three ways one may remove, or lessen, the feelings of dissonance – “...remove dissonant cognitions, add new consonant cognitions, or reduce the importance of dissonant cognitions” (Telci, Maden, & Kantur, 2011, p. 379). It was used to study individual and social psychology, as well as group behavior. By participating in a dissonance-based prevention program, such as the *Body Project*, “...internalizations may lessen, body image may

be improved, and reductions in ED symptomology may result over time” (Voelker et al., 2019, p. 150).

Gaines & Burnett (2014) found that peer influence on prevention efforts and the promotion of positive body image is effective in practice. Incorporating peer leadership can be a meaningful, and relatable way to improve body image among young female athletes, as well as decrease disordered eating. The *Body Project* was designed to be peer led, and efficacy trials show that the *Body Project* results in greater reductions in the development of eating disorder risk factors, symptoms, and functional impairment than other types of interventions (Stice et al., 2019). Therefore, it is important to expose adolescent females and adolescent female athletes to this type of prevention program early on, so they can develop a positive body image, which Soulliard et al. (2019) defines as, “...the love, respect, and acceptance people have for their bodies... [consisting of] appreciating one’s body despite how it compares to societal ideals, as well accepting and admiring the functions it can perform”(p. 93).

The *Body Project* is formatted to be 2 two-hour weekly sessions. The following information is based on *The Body Project Script Peer-Leader, Universal, 2 Session Version* (Becker, Stice, Rhode, & Shaw, 2012). Session one provides an overview to the participants and introduces rules and expectations of the group. The topic areas include the Introduction, Voluntary Commitment and Overview, Definition and Origin of Thin Ideal, Costs Associated with the Thin Ideal, Engage Participants in the Verbal Challenge, Explore Fat Talk, Behavioral Challenge and Home Exercises. The Home Exercises to be completed before session two are “Letter to a Younger Girl” and “Mirror Exercise” (See Appendix A). The importance of attendance and finishing the home exercises is stressed at the start of this session. This first session is highly participant-driven. Session two begins similarly to session one – voluntary

commitment is reinforced. Their home exercises “Letter to Adolescent Girl” and “Mirror Exercise” are discussed and debriefed. Following the home exercises debriefings are the Behavioral Challenge Debriefing, Role Play: Discourage Pursuit of the Thin-Ideal, Top 10 List, Future Pressures to be Thin, Quick Comebacks, Discussion of Benefits of Group, and Self-Affirmation Exercise. The Home Exercises are then introduced – they include “Letter to a Younger Girl” and “Group Body Activism,” and then the program is concluded.

In addition to the traditional *Body Project* program, there is an alternative *Female Athlete Body Project* (Stewart, Pollard, Hildebrandt, Beyl, Wesley, Kilpela, & Becker, 2017). The *Female Athlete Body Project* has a similar format to the traditional *Body Project*, but it also includes information that encourages female athletes to strive for the athlete-specific healthy ideal through exercises that include information on nutrition, the Female Athlete Triad, and balancing caloric input, output, sleep, and exercise (Stewart et al. 2019).

Efficacy of the *Body Project*

The *Body Project* is one of two prevention programs that have shown to significantly decrease eating disorder risk factors (ie. body dissatisfaction) in trials (Stice, Becker, & Yokum, 2013) in both non-female athlete and female athlete populations.

Non-Athlete Females: Stice, Rhode, Burtyn, Shaw, & Marti (2015) tested the *Body Project*'s effectiveness on ideal internalization, body dissatisfaction, negative affect, dieting, and eating disorder symptoms and evaluated a group of college females at risk for eating pathology. Four hundred eight women (across 8 universities), who were at increased risk for developing eating disorders (identified by self-reported body image concerns), were recruited for this study. Stice et al. (2015) delivered the *Body Project* in 4 sessions. To increase feelings of dissonance, Stice et al. (2015) included videotaping sessions as a means to increase the amount of effort

required by participants, while still stressing the voluntary nature of the program. Results show that the *Body Project* (compared to the educational brochure control group) produced significantly greater reductions in eating disorder risk factors and symptoms, it significantly improved psychosocial impairment, and it also reduced body dissatisfaction, negative affect, and eating disorder symptoms. Stice et al. (2015) found that, "...it is feasible for college clinicians to successfully implement the *Body Project* on college campuses and produce clinically meaningful intervention effects that persist over time"(p. 25). By administering the same surveys, Stice et al. (2015) found these effects lasted through a 3 year follow up.

Becker, Smith, & Ciao (2006) studied the effectiveness of a dissonance-based (the *Body Project*) versus a media advocacy program in the prevention of eating disorders in college sorority members. The main difference between the two intervention groups was the media advocacy program includes videos that portray the thin-ideal in media, and these videos were tied into the group discussions. The Dutch Restrained Eating Scale, the Eating Disorder Examination Questionnaire, the Ideal-Body Stereotype Scale – Revised, and the Body Shape Questionnaire were used to assess the variables of restraint, eating pathology, body dissatisfaction, and thin-ideal internalization, and participants completed these surveys before intervention, 7 weeks post intervention, and 8 months post-intervention. Researchers found that the peer-led dissonance-based group showed decreases in restraint, eating pathology, thin-ideal internalization, and body dissatisfaction.

In the general, non-athlete population, a dissonance-based eating disorder prevention program (*Body Project*) is an effective method of decreasing eating disorder risk factors, including thin-ideal internalization and body dissatisfaction.

Female Athletes: There is one study that has evaluated the efficacy of the *Body Project* in female athletes. In the study by Becker, McDaniel, Bull, Powell, & McIntyre (2012), 168 female National Collegiate Athletic Association (NCAA) Division III collegiate athletes participated in an athlete modified dissonance-based prevention program (based on the *Body Project*), or an athlete modified Healthy Weight Intervention. Both interventions were peer led, and consisted of three sessions, over the span of three weeks. Like the traditional *Body Project* program, this athlete dissonance-based prevention program included group discussions, role-play activities, writing, and homework. In addition, this athlete-version included information about the female athlete triad, as well as sport-specific pressures. For example, participants came up with descriptions of what the ideal body type is for their sport. In addition to exploring sport-specific ideals and challenges, the language of the script utilized was more tailored to athletics. For example, instead of using “healthy ideal”, “athlete-specific healthy-ideal” was used to describe an athlete’s body when they are prioritizing health (ie. nutrition, recovery, mental health, and sport performance). It was found that there were significant decreases in thin ideal internalization, dietary restraint, bulimic pathology, shape concern, and negative affect immediately after the intervention (some decreases lasting as long as one year after the intervention). These results were measured using various surveys - Ideal Body Stereotype Scale-Revised (IBSS-R), Dutch Restrained Eating Scale, Eating Disorder Examination Questionnaire (EDE-Q), Shape and Weight subscales from the EDE-Q, and Fear, Guilt, and Sadness subscales from the Positive Affect and Negative Affect Schedule-Revised, respectively.

While the *Body Project* was not originally created specifically for the female athlete population, with some athlete-specific additions to the original script made by a licensed

psychologist, the dissonance-based prevention program has also been shown to reduce subscription to societal ideals in the more specific female athlete population.

Moreover, the *Body Project* is a small-group program that guides women to unsubscribe from socially constructed, unrealistic, beauty ideals through verbal, written, and behavioral exercises. Current research shows that a dissonance-based prevention program, like the *Body Project*, is effective in reducing subscription to thin-ideal internalization, as well as body dissatisfaction. Exposing adolescent females and adolescent female athletes to a program such as the *Body Project* can contribute to the development of a positive body image, which Soulliard et al. (2019) defines as, "...the love, respect, and acceptance people have for their bodies... [consisting of] appreciating one's body despite how it compares to societal ideals, as well accepting and admiring the functions it can perform"(p. 93). More research and efficacy testing are needed in female college athletes to inform procedures and best practices for this population.

II. Methods

The *Body Project* is a dissonance-based program that has been selected based on its success in decreasing eating disorder risk factors in various efficacy trials (Stice, Rhode, Burtyn, Shaw, & Marti, 2015; Becker, Smith, & Ciao, 2006; Becker, McDaniel, Bull, Powell, & McIntyre, 2012), as well as the positive feedback received from Virginia Tech female athletes who participated in a pilot trial of the *Body Project* conducted in Spring of 2019. Because this program was only administered to individuals under the author's clinical care as a Registered Dietitian, and the information collected will be used to evaluate future care and internal program evaluation, this project was considered exempt from review by the Virginia Tech Institutional Review Board (Appendix B).

Participants

Participants consisted of Virginia Tech female collegiate athletes who were members of the intercollegiate Swimming and Diving team between Fall 2019 and Spring 2020. Participants ranged in age from 18 to 21 years. The team Sports Dietitian presented these athletes with the opportunity to participate in-person and via email, and participants were reminded that this program is entirely voluntary and may discontinue participation at any time (Appendix C).

As in a previous study (Becker et al. 2012), those who met criteria for an eating disorder were excluded from analysis. Criteria for an eating disorder was based on an eating disorder screening tool, Female Athlete Assessment Tool (FAST) (Appendix D) (McNulty, Anderson, & Affenito, 2001), which was distributed to all female athletes in Virginia Tech Athletics during August and September of 2019 by the team Sports Dietitian or the team athletic trainer(s). FAST screenings have already been distributed to this group and analyzed by their team Sports Dietitian. A FAST score between 77 and 94 was flagged as “sub-clinical disordered eating”, and a score of greater than 94 was considered to be a “clinical eating disorder”. Thus, athletes whose score was 94, or greater, would have been excluded from participation. None of the participants had a FAST score above 94, so all were allowed to participate without exclusion.

The Eating Disorder Examination Questionnaire (EDE-Q) (Fairburn, 2008) (Appendix G) is an eating disorders assessment tool derived from the Eating Disorder Examination interview (Fairburn & Cooper, 2003). The 28-item questionnaire contains four subscales (Eating Concern, Restraint, Weight Concern, and Shape Concern). These help measure the cognitive aspects of an eating disorder. The questionnaire also includes questions assessing specific behaviors like bingeing, laxative use, purging, etc. Clinicians and researchers can utilize the EDE-Q as a means to collect descriptive information about their target population (Berg, Peterson, Fraizer, & Crow, 2012).

Procedures

Participants attended two 2-hour sessions over the span of 2 weeks during their Winter training (January 2020). The sessions took place in the Merryman Athletic Center Conference Room, which is part of the Athletics facilities on the campus of Virginia Tech. Each session was facilitated by the team Sports Dietitian, as well as by another Sports Dietitian within the Athletic Department. Although the *Body Project* is meant to be peer led, the team Sports Dietitian led these sessions, as there was a limited time to adequately train a peer leader.

The script used for each session was based on the *Body Project Script, Peer-Leader, Universal, 2 Session Version* (Becker, Stice, Rhode, & Shaw, 2012). This script includes various written, verbal, and behavioral exercises regarding the “thin-ideal”, challenging “fat talk”, and writing and debriefing letters to younger girls (among other exercises and activities). Additions (made by Virginia Tech Sports Dietitians, Sports Psychology Counselor, and trained *Body Project* facilitator) to the original script include information more specific to female athletes (ie. Relative Energy Deficiency in Sport (RED-S), sport-specific body image pressures, team-specific body image pressures). The changes were subjectively made, based on previous interactions with female athletes and information the Sports Dietitians and Counselor believe to be pertinent. The original *Body Project* script was sent via email to the dietitian and counselor, and a meeting with a dietitian, counselor, and *Body Project* facilitator was held to discuss changes made to the script for this particular group of athletes. The language used is more tailored to the language used by athletes. For example, instead of using the term “Healthy Ideal”, the term “Athlete-Healthy Ideal” was used, instead. Terms regarding nutrition, used by the Sports Nutrition Department like “fuel” and “book-ending workouts” (regarding eating before and after physical activity) was also used when discussing nutrition. The script that was used in

this project was reviewed previously by a trained *Body Project* facilitator, two Virginia Tech Sports Dietitians, and Sports Psychology counselor in Virginia Tech Athletics. While the modifications made to the original script were minor, the changes that were made catered to aligning the language with the language used at Virginia Tech, as well as the sports of swimming and diving.

Session 1. In this session, participants filled out 3 surveys (see Surveys section below) before the program started. During the introduction of the program, an overview was provided, as well as the rules and expectations of the group. After an ice breaker consisting of each person stating what their biggest body image pet peeve is, the facilitator solicited voluntary commitment for participation from each person in the group via verbal agreement. Participants discussed the definition of the appearance/thin ideal in society and in their specific sport and the costs it takes to achieve these ideals. The athlete healthy-ideal was then defined and contrasted with the thin ideal. Participants practiced challenging fat talk, and homework exercises were distributed and discussed. The homework to be completed prior to Session 2 included the Behavioral Challenge (participants did something they would not normally do because of body image concerns), Letter to a Younger Girl (participants wrote a letter to a younger female athlete, or younger self, who is struggling with her body image about the costs associated with trying to achieve the appearance/thin ideal), and the Mirror Exercise (participants stood in front of a mirror naked and wrote down at least 15 positive qualities).

Session 2. Before the start of the session, verbal voluntary commitment was, once again, solicited from every participant in the group. In this session, all homework exercises assigned from Session 1 were discussed and debriefed. Various questions like, “How did you feel when you did this exercise? Did you find this exercise useful? What did you learn?”, were asked

during this reflection time. Participants then role played to discourage pursuit of the appearance/thin ideal. They discussed ways they can promote body activism moving forward (ie. Putting positive body-image sticky notes on locker room mirrors, following body-positive social media accounts, etc). Each participant thought about a realistic future pressure to conform to the thin-ideal that they may face, and said how they will respond to this pressure. More role play was practiced providing participants with quick comebacks to thin-ideal statements. The session ended with a final homework assignment – writing another letter to a younger athlete using the knowledge gained in the *Body Project* program. Before the athletes left, they answered two surveys (see Surveys section below).

Surveys

Participants answered the Eating Disorder Questionnaire (EDE-Q) (Fairburn & Beglin, 2008) before the first session, to provide the author with more information about the groups' attitudes towards the different aspects of an eating disorder (Eating Concern, Restraint, Weight Concern, and Shape Concern). In order to evaluate thin ideal internalization and body satisfaction, participants completed surveys at two different times (pre-intervention and post-intervention) using a unique identifier. Using their unique identifier (a number from 1-10), these surveys were completed anonymously by participants. The first survey was the Ideal Body Stereotype Scale-Revised (IBSS-R) (Stice & Argas, 1998) which assesses thin ideal internalization. (Appendix E). This 6-question survey asks participants to determine how much they agree or disagree based on a scale from 1 (strongly disagree) to 5 (strongly agree). The second survey was the Body Parts Dissatisfaction Scale – Revised (BPSS-R) (Petrie, Tripp, & Harvey, 2002) (Appendix F). This survey measures participants' satisfaction regarding 15 different body parts and facial features on a 6-point Likert scale. In all, participants answered 21

questions. The two surveys required 10 minutes for all participants to complete. The surveys were distributed on paper at the same location the sessions took place.

Survey data was compiled following submission of both surveys. Data are expressed as mean \pm standard deviation. To compare the pre- and post- survey results, Adobe Graphpad Prism was utilized to run a paired t-test. Significance was set at the level of $p < 0.05$.

III. Results

The full project was completed by 9 female Virginia Tech swimmers. Participant #3 did not return to the second *Body Project* session, so her session 1 survey data was not included, resulting in 9 participants' responses available for analysis. The nine participants ranged in age from 19.44 ± 1.42 years. Five participants were freshmen, 2 participants were juniors, and 2 participants were seniors. All participants were Caucasian: 8 American, and 1 Canadian.

None of the participants were flagged as having an eating disorder, according to their FAST results the team dietitian received and reviewed at the beginning of the Fall 2019 semester. When reviewing the group's EDE-Q results (Table 3), the questions that received the 5 highest scores fell under either the shape concern or weight concern subscale, with the group's highest score of 2.78 for the question, "How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?" with a scale from 0 ('not at all') to 6 ('markedly'). Alternatively, the 5 questions that received the lowest scores fell under the subcategories of restraint, eating concern, and one coming from shape concern. The group's lowest score of 0.00 resulted from the question, "On how many of the past 28 days...Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?" with a scale from 0 (no days) to 6 (every day). Overall, the groups' concerns revolved less around eating

concerns, but rather risk factors that may progress to eating disorder tendencies (ie. concerns with weight and body shape).

Analyses showed that several BPSS-R and IBSS-R questions (7 from BPSS-R and 4 from IBSS-R) (Table 1 and Table 2) resulted in statistically significant improvements from pre-intervention to post-intervention. Questions regarding height, weight, hair, complexion, overall face, stomach, legs, and overall satisfaction with size and shape of body improved significantly from pre to post intervention ($p < 0.05$). Height (5.56 ± 0.53), legs (5.22 ± 0.83), and hair, overall face, and lower legs (5.33 ± 0.71) received the highest mean score post intervention, meaning these were the body parts the group was most satisfied with. Chest was the body part the group was most dissatisfied with (4.72 ± 1.03), followed by complexion, arms, and stomach (4.89 ± 1.17 , 0.93 , 1.17 , respectively). Between the pre- and post-survey, weight, overall face, and lower legs had the greatest percent change (25%, 29.68%, and 23.70%, respectively). Back, general muscle tone, and overall satisfaction with size and shape of body had the lowest percent change from pre- and post-intervention (6.31%, 6.60%, and 4.6%, respectively).

Table 1. Body Parts Satisfaction Survey – Revised Results

Question (Body Part)	Participant																		MEAN		STD DEVIATION		P-VALUE
	1		2		4		5		6		7		8		9		10		pre	post	pre	post	post
	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	post
Height	6	6	5	5	6	6	4	5	5	6	6	6	3	5	5	6	4	5	4.89	5.56	1.05	0.53	0.022*
Weight	4	6	5	5	6	6	4	4	5	6	1	3	3	5	5	6	3	4	4	5	1.5	1.12	0.009*
Hair	2	5	5	5	6	6	4	4	5	6	4	5	6	6	4	6	4	5	4.44	5.33	1.24	0.71	0.035*
Complexion	3	5	5	5	6	6	2	2	6	6	4	5	5	5	3	5	6	5	4.11	4.89	1.45	1.17	0.043*
Overall face	4	5	4	5	6	6	3	4	5	6	3	5	5	6	3	5	6	6	4.11	5.33	1.27	0.71	0.005*
Shoulders	1	4	5	5	6	6	3	4	6	6	2	3	6	6	5	6	6	5	4.33	5	1.87	1.12	0.081
Arms	2	5	3	4	6	6	3	4	6	6	2	4	6	6	6	6	4	4	4.11	4.89	1.69	0.93	0.065
Stomach	5	6	2	4	5	6	3	4	6	6	2	3	2	4	6	6	5	5	4	4.89	1.73	1.17	0.009*
Chest	2	4	4	5	6	6	4	4	6	5.5	2	3	6	4	5	6	5	5	4.44	4.72	1.59	1.03	0.489
Back	2	4	5	5	6	6	4	4	6	6	3	3	6	6	5	6	5	5	4.67	5	1.41	1.12	0.195
Buttocks	4	5	5	5	6	6	4	4	6	6	3	4	5	5	4	6	5	4	4.67	5	1	0.87	0.282
Legs	4	6	4	5	6	6	4	4	6	6	2	5	3	5	5	6	4	4	4.22	5.22	1.3	0.83	0.028*
Lower legs (calves)	5	5	5	5	6	6	4	4	6	6	3	5	6	6	5	6	5	5	5	5.33	1	0.71	0.195
General muscle tone	3	5	5	5	5	5	4	4	5	6	3	4	6	5	6	6	5	5	4.78	5	1.2	0.71	0.447
Overall satisfaction with size and shape of your body	4	5	5	5	6	6	4	4	5	6	3	4	4	5	5	6	5	5	4.56	5.11	0.88	0.78	0.013

* = p-value <0.05

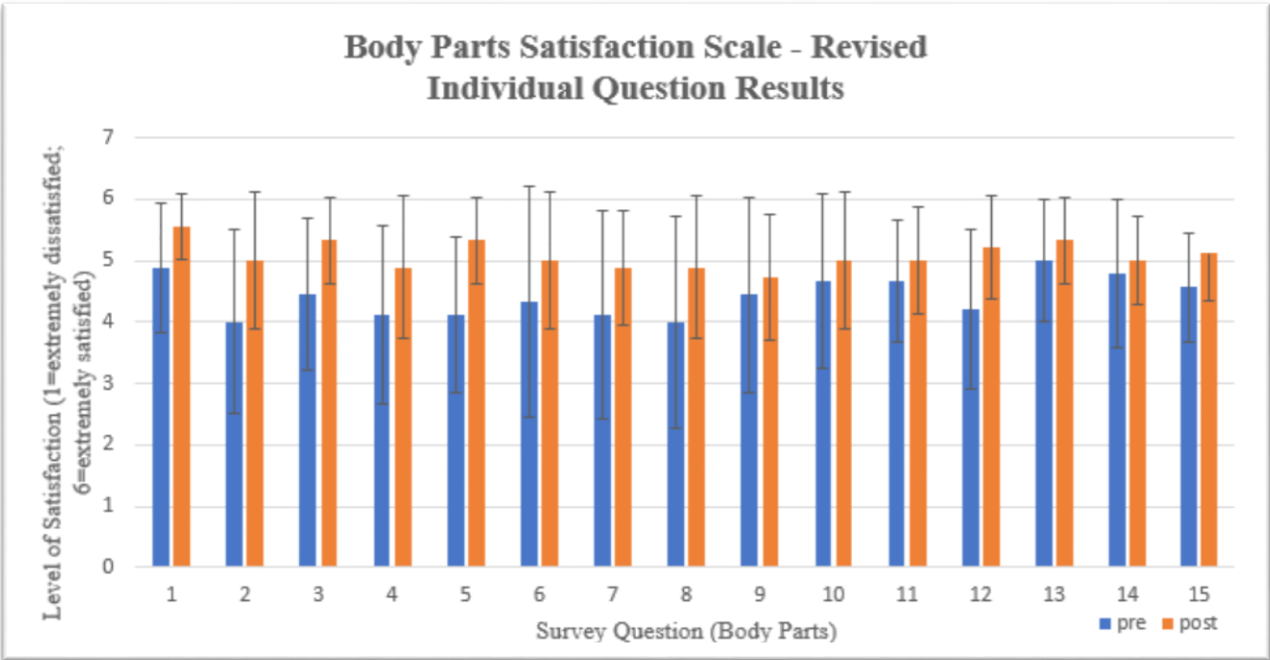


Figure 1. Body Parts Satisfaction Survey – Revised Results

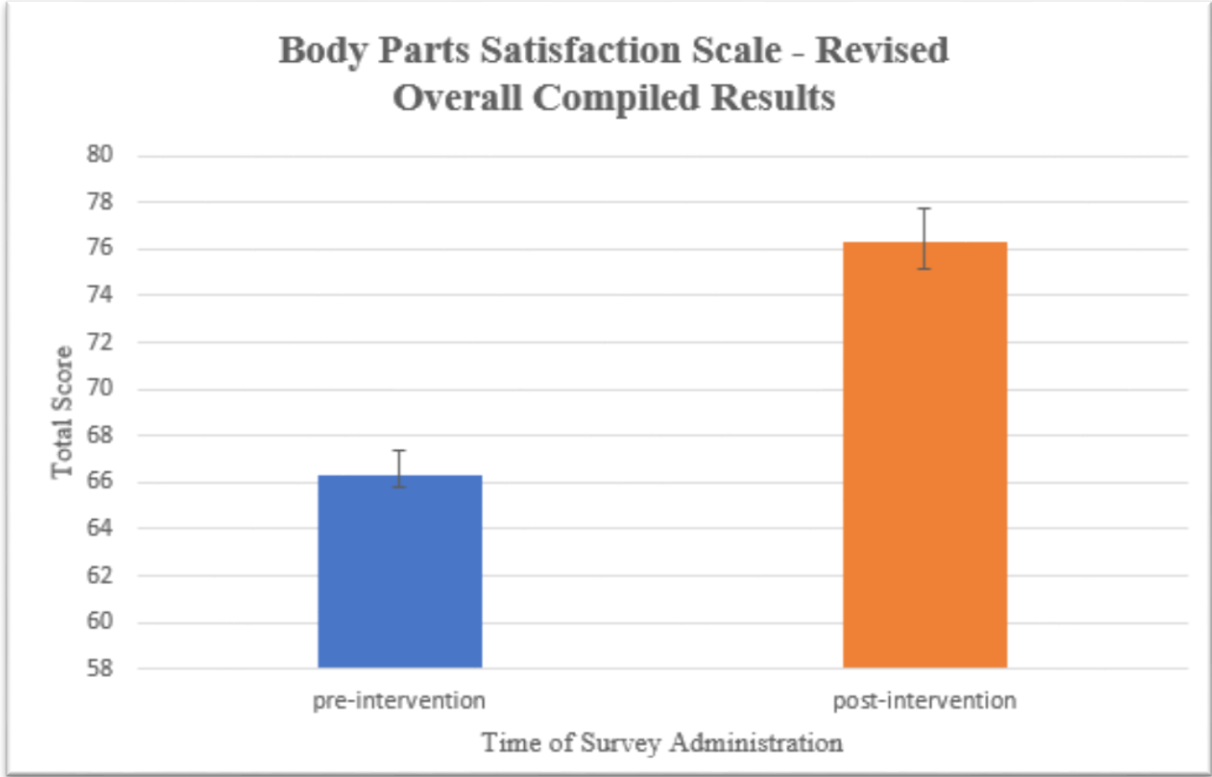


Figure 2. Body Parts Satisfaction Survey – Revised Results

Results of the IBSS-R Survey are shown in Table 2 and Figures 3 and 4. Statements describing slender, toned, shapely, and long-legged women as more attractive improved significantly from pre to post intervention ($p < 0.05$). Between the pre- and post- surveys, the slender women, toned (lean) women, and shapely women descriptions had the greatest percent change (-43.75%, -46.55%, and -38.41%, respectively). Women in shape, tall women, and long-legged women were the descriptions that received lesser percent changes (-30.03%, -29.21%, and -37%, respectively). Slender women (mean of 1.44 ± 0.53), toned/lean women (mean of 1.78 ± 0.67), and shapely women (mean of 1.78 ± 0.67) received the lowest scores post-intervention, meaning the group subscribes to these ideal body descriptions the least. Women who are in shape (mean of 2.33 ± 1.41), tall women (mean of 1.89 ± 1.05) and women with long legs (mean of 1.89 ± 0.93) received the highest scores post-intervention, meaning these were the descriptions of the ideal body that the group agree with the most.

Table 2. Ideal Body Stereotype Scale – Revised Results

Statement	Participant																				MEAN		STD DEVIATION		P-VALUE
	1		2		4		5		6		7		8		9		10		pre	post	pre	post	post		
	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	post		
Slender women are more attractive	2	2	3	1	3	1	2	2	1	1	3	1	2	1	3	2	4	2	2.56	1.44	0.88	0.53	0.007*		
Women who are in shape are more attractive	5	4	4	1	3	1	3	3	2	1	3	5	3	2	3	2	4	2	3.33	2.33	0.87	1.41	0.067		
Tall women are more attractive	4	2	3	1	3	1	3	2	1	1	3	3	4	3	3	2	2	1	2.67	1.89	0.87	1.05	0.065		
Women with toned (lean) bodies are more attractive	5	2	4	1	3	1	4	2	1	1	3	3	3	2	3	2	4	2	3.33	1.78	1.12	0.67	0.003*		
Shapely women are more attractive	3	2	3	1	3	1	3	2	1	1	3	3	3	2	4	2	3	2	2.89	1.78	0.78	0.67	0.003*		
Women with long legs are more attractive	4	2	4	1	3	1	3	2	1	1	3	4	4	2	3	2	2	2	3	1.89	1	0.93	0.03*		

*= p-value <0.05

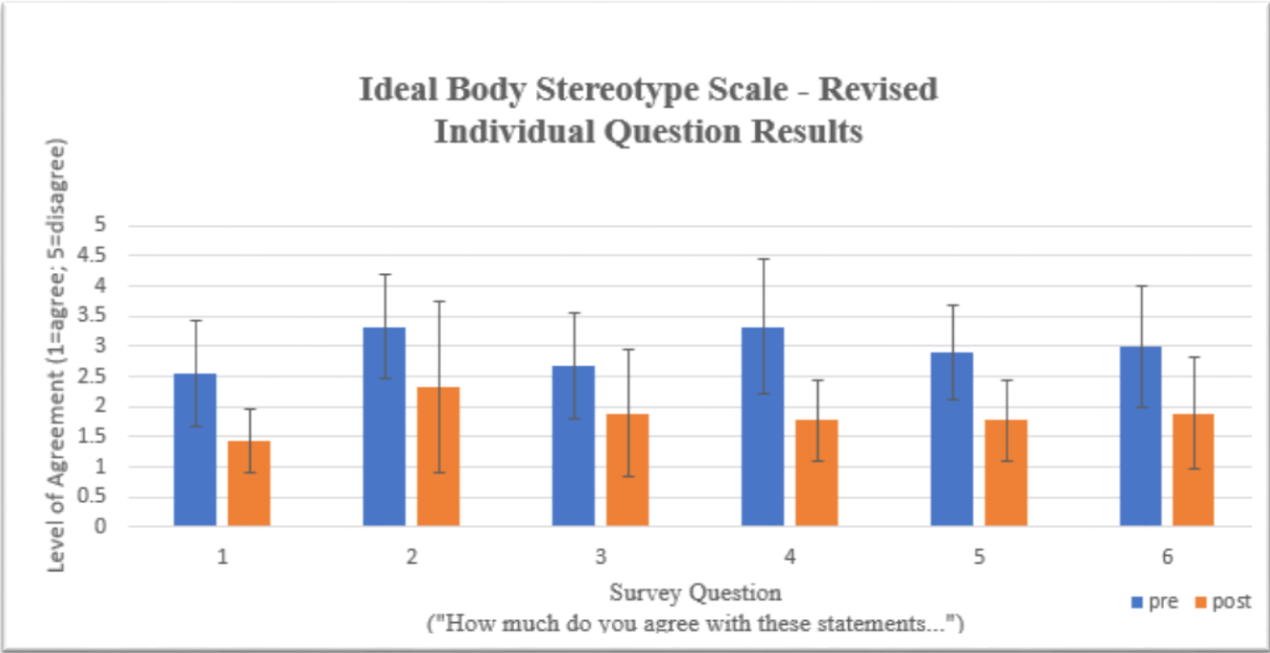


Figure 3. Ideal Body Stereotype Scale – Revised Results

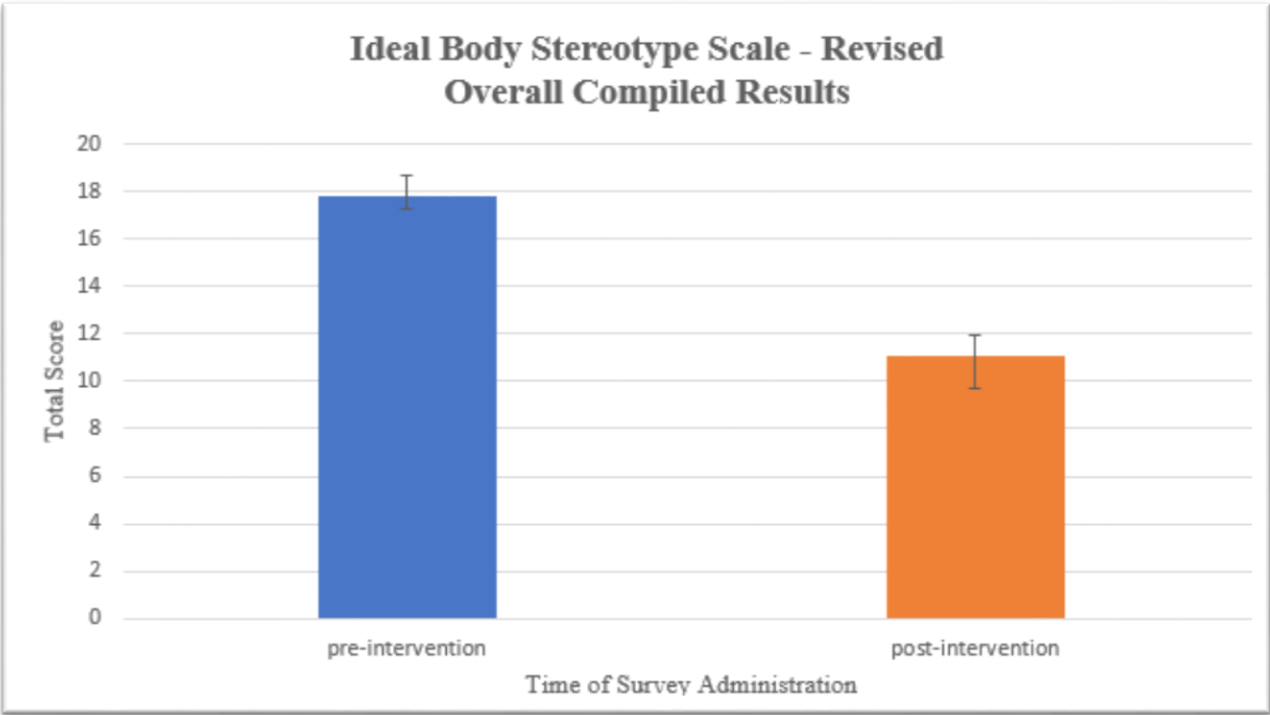


Figure 4. Ideal Body Stereotype Scale – Revised Results

Moreover, out of 21 questions included in the BPSS-R and IBSS-R surveys, statistically significant improved scores were achieved post implementation for 11 questions ($p < 0.05$). Additionally, more than half of participants showed significant improvements regarding body satisfaction and decreased thin-ideal internalization.

IV. Discussion

The *Body Project*, a dissonance-based prevention program, administered to female swimmers from Virginia Tech in January, 2020, showed efficacy in improving body satisfaction and decreasing subscription to thin-ideal internalization. These findings suggest that the *Body Project* is a practical, efficient-to-deliver program that may meaningfully impact predictors of poor body image and disordered eating in female collegiate athletes. Opportunities to extend this program to other Virginia Tech teams or collegiate athletes exist.

The results of the BPSS-R survey reflect the discussion that occurred during the intervention. A swimmer's body type, based on media and images of elite swimmers, generally has broad shoulders and a flat stomach. These body parts were two of the survey questions that the group was the most dissatisfied with. This may be due in part that the thin-ideal prefers narrower shoulders on women as well as the reality that they wear form-fitting, revealing swim suits, causing them to feel more pressure to have stomachs that are flat. These examples highlight how athletes not only receive ideal body pressures from inside and outside their sport, but these pressures are often contradictory. Many participants aspired to the well-defined muscle tone of professional swimmers, and even the male teammates, and while 'general muscle tone' (BPSS-R) received one of the lowest percent changes, the statement regarding toned bodies had the greatest percent change in the IBSS-R. This may be due to the fact that the language the IBSS-R specifies statements regarding "women", potentially causing the athletes to think of

these questions pertaining to non-athlete women. The BPSS-R simply lists different body parts, allowing participants to interpret them how they wish.

In Stice, Rhode, Shaw, and Gau's (2011) effectiveness trial, the mean score for IBSS-R of all participants was 3.35, and at the first follow up (2 years), participants had a mean of 3.21. Participants of this intervention had a group mean of 3.006 pre-intervention and a mean of 1.831. In both cases, there was a decrease in participant subscription to the thin ideal. The effectiveness trial had a pre-test mean of 3.47 for the BPSS-R and a mean of 3.06 at the 2 year follow up. Participants of this intervention had a group mean of 4.47 pre-intervention and a post-intervention mean of 5.22. While body satisfaction decreased for participants of the effectiveness trial, this intervention group experienced increased body satisfaction.

Observations from the *Body Project*

Aside from the one participant who did not return after session 1, all other participants were compliant with their homework assignments and actively participated during both sessions. Along with the author, another Virginia Tech Sports Dietitian assisted in leading the *Body Project* to be trained as a facilitator for future sessions. The athletes verbally mentioned, at the end of session 2, that one of the most helpful and effective activities for them was the "Costs" activity where they listed different physical, mental, and financial costs of pursuing the appearance ideal (thin-ideal) and the swimmer ideal. Listing these costs up on the projector provided a powerful visual for the group, as they can see just how much they spend on achieving the thin-ideal. This group became especially vulnerable during session 2, sharing very personal experiences with the group. In "Letter to a Younger Girl", one participant addressed the letter to her younger self and through tears, shared how comments about her body made by others, and by coaches, affected her self-worth. On a more light-hearted topic, many of the participants bonded

over how their non-athlete peers judge them for how much they eat, but this group seemed to enjoy talking about how much food their bodies require, especially during a time like winter training. The group also had a great time practicing role-playing fat-talk situations. Many of the participants seemed awkward at first when responding to fat-talk statements, but it was encouraging to see their skills and confidence grow when utilizing fat-talk strategies throughout the program. In fact, after the completion of the intervention, one participant shared that she was looking at her body in the weight-room mirror during a training session and caught herself making thin-ideal statements to herself, but she quickly caught herself and corrected those thoughts with some of the dialogue she learned during the *Body Project*. Most of them voiced that they think their team, and other female athletes, would enjoy and benefit from also participating in future *Body Project* sessions. Additionally, 2 participants reached out to the team dietitian after the intervention with concerns of RED-S.

Strengths

The primary strength of this project is real-world administration and evaluation of the *Body Project* in collegiate athletes. The Swim and Dive Team happens to have a long Winter training schedule, where they are required to stay in town and practice twice a day. This schedule, along with the absence of classes, allowed for more discretionary time for the athletes to participate in this intervention and focus on completing the intersession tasks. Utilizing the assistance of past participants to encourage teammates to sign up and participate resulted in more athletes to sign up for the intervention. The timing of the sessions (2 hours each), as well as the length of the program (2 weeks total), seem to have been an ideal amount of time with participants. Upon the conclusion of session 2, athletes verbally provided positive feedback stating they learned a lot during the program while enjoying the experience.

Limitations

This intervention had a small sample size at the start (n=10) and was smaller by the start of the second session (n=9) due to one participant choosing to not return and complete the intervention. Additionally, there was not control group to compare results to. It is encouraging that, with such a small participant group (n=9), significant results were still achieved. However, unlike other effectiveness trials (Stice et al., 2008; Stice, Rhode, & Shaw, 2011; Stice et al., 2015) that had follow-up assessments one, two, and/or three years post-intervention, this project only assessed participants immediately before and after the *Body Project* 2-session intervention. Additionally, while participants were asked to complete these surveys quietly and independently, some were speaking amongst themselves, potentially affecting their survey answers

Implications for Future Implementation

This is the first time the *Body Project* was implemented in Virginia Tech Athletics where pre- and post-intervention surveys were taken to assess effectiveness. Considering the nature of the Sports Nutrition Department's graduate assistant RD position (a 2-year position), the following RE-AIM (<http://www.re-aim.org/>) framework will help achieve consistency across future *Body Project* sessions delivered within Virginia Tech Athletics, as well as other athletic departments.

Reach: The *Body Project* states that intervention groups should consist of 8-10 participants. This small-group setting is more conducive to the activities and group discussions held within sessions. To help increase the number of voluntary sign-ups, the facilitator should take in to account the sports' seasons, practice schedules, and general class schedules. Advertising in a variety of ways can also encourage participants to sign up (ie. An official announcement to the team, email, word of mouth from the coaching staff and athletic trainers,

and through encouragement from past participants). Additionally, offering small incentives (food, snacks, and beverages) may also entice athletes to volunteer their time.

Effectiveness/Efficacy: This intervention's data shows that the *Body Project* was effective in increasing body satisfaction, as well as decreasing subscription to the thin-ideal internalization for the majority of participants. Additionally, although the initial aim of this intervention was not to increase awareness of RED-S, information regarding this topic was included, as it is pertinent to the female athlete population, and two participants reached out to the team dietitian with concerns for their energy intake status.

Adoption: For the purpose of this project, the intervention was led by the team dietitian. However, anyone who is a trained *Body Project* facilitator is able to lead this program. The team dietitian was trained by an on-campus *Body Project* facilitator, or if there are no trained facilitators at the organization, the Body Project Collaborative (<https://www.bodyprojectcollaborative.com/>) provides training services at a cost. While the *Body Project* is originally meant to be peer led, this modified script addresses RED-S, which may be better explained by a registered dietitian or clinician, so having one present at the session or available (should any questions/concerns arise during the intervention), would help ensure participants are receiving the support they need outside of the *Body Project* intervention. Facilitators should allow 2 weeks to promote a particular session that will be held, 2 and a half hours for session 1 (including time for set up, questions, and clean up), and 2 and a half hours for session 2. If the organization is wanting to measure efficacy of the intervention immediately before and after, participants can answer the BPSS-R and IBSS-R before the intervention and immediately after the end of the second session.

Implementation: Should an organization choose to have peer leaders facilitate the *Body Project* there should be adequate training and guidelines for the facilitators. Sticking to the *Body Project* script will help standardize the sessions among groups, as well as ensure that facilitators do not discuss topics beyond their scope of practice.

Maintenance: Depending on number/availability of facilitators at an organization, the number of *Body Project* sessions available to student athletes may vary. Hokie Wellness has a group of peer leaders who deliver the *Body Project* to sororities across campus. Having a group of peer facilitators would allow for more sessions, as well as a wider variety of times available for potential participants. Additionally, training more permanent, full time clinicians to be facilitators may also ensure the longevity of *Body Project* implementation in the organization, as people like peer leaders and graduate assistant RDs are bound to leave the organization, such as a college athletic department. Regarding cost of maintenance, this program requires the facilitator's time (two hours for two weeks per group), as well as the cost of food, if the organization chooses to provide this, especially if it is a means of encouraging voluntary participation.

Conclusion

In summary, eating disorders and disordered eating are common among female athletes. Virginia Tech Athletics does not have a group-based prevention program in place. The findings of this pilot project suggest that the *Body Project* is an effective dissonance-based eating disorder prevention program for college female athletes. This modified version of the *Body Project* was effective in increasing body satisfaction and decreasing subscription the thin-ideal for female college athletes. Virginia Tech Athletics may benefit from continuing to spend the time and resources in order to make the *Body Project* available to all female athletes.

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Appendix B:

From: Farmer, Jennifer

Sent: Thursday, September 3, 2020 1:12 PM

To: Rockwell, Michelle <msrock@vt.edu>

Subject: IRB review needed?

Hi Michelle,

Thank you for your question regarding the student's project. If the individuals participating in the project are under the approved clinical care of the graduate student performing the project, IRB approval is not required. It sounds as if she is performing a group session with her patients and then evaluating the effectiveness of it. This is part of standard and usual care. If someone is performing a research study and they do not have approval for clinical care for this group, IRB approval is likely required. Of course, if data are included in a published project report, they should be de-identified. Let us know if you have further questions.

Thank you,

Jennifer

--

Jennifer L. Farmer, MPH, CIP

HRPP Protocol Coordinator

Scholarly Integrity and Research Compliance

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Appendix C:

The following is an excerpt from the *Body Project* script (Becker, Stice, Rohde, & Shaw, 2012).

I. INTRODUCTION AND ICEBREAKER (10 MINS)

On point leader: _____

"Thanks for coming. We thought we would start by introducing ourselves and letting you know who we are and why we signed on as peer leaders to lead this program. I'll start.

Research shows that when women/girls talk about the "appearance ideal" shown in the mass media, and how to challenge pressures to conform to these ideals, it makes them feel better about their bodies. This has been found to be the best program for improving body image and to reduce unhealthy weight gain and eating problems. It has been found that 42% of female athletes reported disordered eating and of these who reported disordered eating, they were 8 x more likely to get injured than those who did not report disordered eating."

The group leader begins by introducing herself/himself to the group. Introductions include name, professional status, and personal information (e.g., something interesting or unique about themselves). The group leader asks the co-leader (if available) and group members to introduce themselves. Let's get to know each other better. Can each of use tell us your name and something your teammates do not know about you. Group leaders should spend a few moments with each participant to elicit specific information and show interest (e.g., How long have you been horseback riding? What kind of paintings do you do?). On point leader:

"Okay, let's warm up to our topic using an icebreaker that we have. It is called "My Biggest Body Image Pet Peeve." In this icebreaker, each of us will describe our biggest pet peeve with either the media or the fashion industry, both of which influence one's body image. For example, someone might say that her biggest pet peeve is the way that clothing sizes for women vary so much according to brand. Or someone else might say that her biggest pet peeve is the way editors touch up photos in magazines so that we never get to see a real person.

I will start and then we will go around the room. My biggest pet peeve is...."

II. VOLUNTARY COMMITMENT AND OVERVIEW (2 MINS) Soliciting voluntary commitment to participating in the class

People get the most out of these groups if they attend both meetings, participate verbally, and complete all of the between-meeting exercises. It is important to clearly note that participation is voluntary. Is each of you willing to volunteer to actively participate in the group? Let's go around the group. I will start.... *If people are not willing to actively participate, thank them for coming but mention that willing participation is necessary for this to be worthwhile

Go around the room and have each participant say they are willing to actively participate.

"During the two sessions we will: 1. Define the appearance ideal and explore its origin 2. Examine the costs of pursuing this ideal 3. Discuss energy deficiency in athletes 4. Explore ways to resist pressures to conform to an appearance ideal 5. Discuss how to challenge our personal body-related concerns 6. Learn new ways to talk more positively about our bodies, and 7. Talk about how we can best respond to future pressures to conform to an appearance ideal We deliver this program in a group format so that, as athletes, you can provide support for each other and improve the team culture by being able to recognize and shut down "fat talk" and encourage healthy behaviors with your teammates."

Appendix D:

Female Athlete Screening Tool (FAST)

Please answer as completely as possible:

- | | |
|---|---|
| <p>1. I participate in additional physical activity \geq20 minutes in length on days that I have practice or competition.
1) Frequently 2) Sometimes
3) Rarely 4) Never</p> <p>2. If I cannot exercise, I find myself worrying that I will gain weight.
1) Frequently 2) Sometimes
3) Rarely 4) Never</p> <p>3. I believe that most female athletes have some form of disordered eating habits.
1) Strongly agree 2) Agree
3) Disagree 4) Strongly disagree</p> <p>4. During training, I control my fat and calorie intake carefully.
1) Frequently 2) Sometimes
3) Rarely 4) Never</p> <p>5. I do not eat foods that have more than 3 grams of fat.
1) Strongly agree 2) Agree
3) Disagree 4) Strongly disagree</p> <p>6. My performance would improve if I lose weight.
1) Strongly agree 2) Agree
3) Disagree 4) Strongly disagree</p> <p>7. If I got on the scale tomorrow and gained 2 pounds, I would practice or exercise harder or longer than usual.
1) Frequently 2) Sometimes
3) Rarely 4) Never</p> <p>8. I weigh myself _____.
1) Daily 2) 2 or more times a week
3) Weekly 4) Monthly or less</p> | <p>9. If I chose to exercise on the day of competition (game/meet), I exercise for
1) 2 or more hours 2) 45 minutes to 1 hour
3) 30 to 45 minutes 4) Less than 30 minutes</p> <p>10. If I know that I will be consuming alcoholic beverages, I will skip meals on that day or the following day.
1) Frequently 2) Sometimes
3) Rarely 4) Never</p> <p>11. I feel guilty if I choose fried foods for a meal.
1) Frequently 2) Sometimes
3) Rarely 4) Never</p> <p>12. If I were to be injured, I would still exercise even if I was instructed not to do so by my athletic trainer or physician.
1) Strongly agree 2) Agree
3) Disagree 4) Strongly disagree</p> <p>13. I take dietary or herbal supplements in order to increase my metabolism and/or to assist in burning fat.
1) Frequently 2) Sometimes
3) Rarely 4) Never</p> <p>14. I am concerned about my percent body fat.
1) Frequently 2) Sometimes
3) Rarely 4) Never</p> |
|---|---|

KEY:
Exercise = Physical activity \geq 20 minutes
Practice = Scheduled time allotted by coach to work as a team or individually in order to improve performance
Training = Intense physical activity. The goal is to improve fitness level in order to perform optimally.

TURN PAGE OVER

- 15. Being an athlete, I am very conscious about consuming adequate calories and nutrients on a daily basis.**
 1) Frequently 2) Sometimes
 3) Rarely 4) Never
- 16. I am worried that if I were to gain weight, my performance would decrease.**
 1) Strongly agree 2) Agree
 3) Disagree 4) Strongly disagree
- 17. I think that being thin is associated with winning.**
 1) Strongly agree 2) Agree
 3) Disagree 4) Strongly disagree
- 18. I train intensely for my sport so I will not gain weight.**
 1) Frequently 2) Sometimes
 3) Rarely 4) Never
- 19. During season, I choose to exercise on my one day off from practice or competition.**
 1) Frequently 2) Sometimes
 3) Rarely 4) Never
- 20. My friends tell me that I am thin but I feel fat.**
 1) Frequently 2) Sometimes
 3) Rarely 4) Never
- 21. I feel uncomfortable eating around others.**
 1) Frequently 2) Sometimes
 3) Rarely 4) Never
- 22. I limit the amount of carbohydrates that I eat.**
 1) Frequently 2) Sometimes
 3) Rarely 4) Never
- 23. I try to lose weight to please others.**
 1) Frequently 2) Sometimes
 3) Rarely 4) Never
- 24. If I were unable to compete in my sport, I would not feel good about myself.**
 1) Strongly agree 2) Agree
 3) Disagree 4) Strongly disagree
- 25. If I were injured and unable to exercise, I would restrict my calorie intake.**
 1) Strongly agree 2) Agree
 3) Disagree 4) Strongly disagree
- 26. In the past 2 years I have been unable to compete due to an injury.**
 1) 7 or more times 2) 4 to 6 times
 3) 1 to 3 times 4) No significant injuries
- 27. During practice I have trouble concentrating due to feelings of guilt about what I have eaten that day.**
 1) Frequently 2) Sometimes
 3) Rarely 4) Never
- 28. I feel that I have a lot of good qualities.**
 1) Strongly agree 2) Agree
 3) Disagree 4) Strongly disagree
- 29. At times I feel that I am no good at all.**
 1) Strongly agree 2) Agree
 3) Disagree 4) Strongly disagree
- 30. I strive for perfection in all aspects of my life.**
 1) Strongly agree 2) Agree
 3) Disagree 4) Strongly disagree
- 31. I avoid eating meat in order to stay thin.**
 1) Strongly agree 2) Agree
 3) Disagree 4) Strongly disagree
- 32. I am happy with my present weight.**
 1) Yes 2) No
- 33. I have done things to keep my weight down that I believe are unhealthy.**
 1) Frequently 2) Sometimes
 3) Rarely 4) Never

APPENDIX E:

Ideal Body Stereotype Scale – revised

How much do you agree with these statements: strongly disagree neutral agree

	strongly	disagree		neutral	agree
1. Slender women are more attractive.	1	2	3	4	5
2. Women who are in shape are more attractive.	1	2	3	4	5
3. Tall women are more attractive	1	2	3	4	5
4. Women with toned (lean) bodies are more attractive. . .	1	2	3	4	5
5. Shapely women are more attractive	1	2	3	4	5
6. Women with long legs are more attractive.	1	2	3	4	5

Scoring:
Circled responses should be averaged to form a scale score.

Ideal Body Stereotype Scale – Revised (Stice & Argas, 1998)

Appendix F:

Body Parts Satisfaction Scale - Revised (BPSS-R)

DIRECTIONS: Below is a list of body parts. Please rate how satisfied you are, at this moment, with each body part according to the following scale. Remember, it is very important that you respond to all the items and that you answer them honestly as they apply to you. All of the information you provide will be kept strictly confidential.

	Extremely Dissatisfied	1	2	3	4	5	6	Extremely Satisfied	
1. Height				1	2	3	4	5	6
2. Weight				1	2	3	4	5	6
3. Hair				1	2	3	4	5	6
4. Complexion				1	2	3	4	5	6
5. Overall face.....				1	2	3	4	5	6
6. Shoulders				1	2	3	4	5	6
7. Arms				1	2	3	4	5	6
8. Stomach				1	2	3	4	5	6
9. Chest.....				1	2	3	4	5	6
10. Back				1	2	3	4	5	6
11. Buttocks				1	2	3	4	5	6
12. Legs.....				1	2	3	4	5	6
13. Lower legs (calves).....				1	2	3	4	5	6
14. General muscle tone				1	2	3	4	5	6
15. Overall satisfaction with size and shape of your body.				1	2	3	4	5	6

Body Parts Satisfaction Scale – Revised (Petrie, Tripp, & Harvey, 2002)

Appendix G:

EATING QUESTIONNAIRE

ID: _____ **Date:** _____

Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all of the questions. Please only choose one answer for each question. Thank you.

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.

On how many of the past 28 days	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
1 Have you been deliberately <u>trying</u> to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
2 Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?	0	1	2	3	4	5	6
3 Have you <u>tried</u> to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
4 Have you <u>tried</u> to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
5 Have you had a definite desire to have an <u>empty</u> stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6
6 Have you had a definite desire to have a <u>totally flat</u> stomach?	0	1	2	3	4	5	6
7 Has thinking about <u>food, eating or calories</u> made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
8 Has thinking about <u>shape or weight</u> made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
9 Have you had a definite fear of losing control over eating?	0	1	2	3	4	5	6
10 Have you had a definite fear that you might gain weight?	0	1	2	3	4	5	6
11 Have you felt fat?	0	1	2	3	4	5	6
12 Have you had a strong desire to lose weight?	0	1	2	3	4	5	6

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Eating Disorder Questionnaire (EDE-Q) Page 1 (Fairburn & Beglin, 2008)

Questions 13-18: Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).

Over the past four weeks (28 days).....

- 13 Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)?
- 14On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?
- 15 Over the past 28 days, on how many DAYS have such episodes of overeating occurred (i.e. you have eaten an unusually large amount of food and have had a sense of loss of control at the time)?
- 16 Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?
- 17 Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?
- 18 Over the past 28 days, how many times have you exercised in a "driven" or "compulsive" way as a means of controlling your weight, shape or amount of fat or to burn off calories?

Questions 19-21: Please circle the appropriate number. Please note that for these questions the term "binge eating" means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

19	Over the past 28 days, on how many days have you eaten in secret (ie, furtively)?.....Do not count episodes of binge eating	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
		0	1	2	3	4	5	6
20	On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effect on your shape or weight?Do not count episodes of binge eating	None of the times	A few of the times	Less than half	Half of the times	More than half	Most of the time	Every time
		0	1	2	3	4	5	6
21	Over the past 28 days, how concerned have you been about other people seeing you eat?Do not count episodes of binge eating	Not at all	Slightly	Moderately				Markedly
		0	1	2	3	4	5	6

Questions 22-28: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days)

On how many of the past 28 days	Not at all	Slightly	Moderately	Markedly			
22 Has your <u>weight</u> influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
23 Has your <u>shape</u> influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
24 How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?	0	1	2	3	4	5	6
25 How dissatisfied have you been with your <u>weight</u> ?	0	1	2	3	4	5	6
26 How dissatisfied have you been with your <u>shape</u> ?	0	1	2	3	4	5	6
27 How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?	0	1	2	3	4	5	6
28 How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?	0	1	2	3	4	5	6

What is your weight at present? (Please give your best estimate).

What is your height? (Please give your best estimate).

If female: Over the past three-to-four months have you missed any menstrual periods?

If so, how many?

Have you been taking the "pill"?

THANK YOU

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Table 3. Eating Disorder Examination Questionnaire Results

Question	Participant										MEAN	STD DEVIATION
	1	2	4	5	6	7	8	9	10			
1	1	2	0	0	0	2	1	0	0	0	0.67	0.87
2	0	1	0	0	0	0	0	0	0	0	0.11	0.33
3	1	2	2	1	0	4	1	0	0	0	1.22	1.3
4	0	2	0	0	0	3	4	0	0	0	1	1.58
5	0	1	0	0	0	0	0	0	0	0	0.11	0.33
6	1	3	2	2	0	6	1	0	1	1	1.78	1.86
7	0	0	0	1	0	0	0	1	1	1	0.33	0.5
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	1	0.11	0.33
10	0	1	1	0	0	6	0	1	1	1	1.11	1.9
11	1	1	1	2	0	5	2	1	0	0	1.44	1.51
12	1	2	0	1	0	4	1	0	0	0	1	1.32
13	4	2	3	3	2	0	0	0	0	0	1.6	1.59
14	0	1	0	3	0	2	0	0	0	0	0.67	1.12
15	0	2	0	2	0	0	0	0	0	0	0.44	0.88
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	6	0	0	0	0	0.67	2
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	1	1	1	1	4	1	0	1	1	1.11	1.17
21	0	0	0	0	0	4	0	0	0	0	0.44	1.33
22	2	0	0	1	0	6	1	0	2	2	1.33	1.94
23	4	2	1	2	0	5	1	0	2	2	1.89	1.69
24	2	1	0	4	1	6	5	0	6	6	2.78	2.49
25	1	2	0	2	0	6	3	0	2	2	1.78	1.92
26	4	1	1	2	0	6	1	1	1	1	1.89	1.9
27	2	1	0	2	0	5	0	0	1	1	1.22	1.64
28	1	1	0	2	0	6	0	0	0	0	1.11	1.96