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# Resistance training behaviors in college-aged women 2013

Melanie Kornblatt

Resistance Training Behaviors in College-Aged Women

by

Melanie Kornblatt

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Kinesiology Department

STATE UNIVERSITY OF NEW YORK at CORTLAND

Approved:

| | |
|---|---|
| _____ | _____ |
| Date | Katherine M. Polasek, Ph.D.<br>Thesis Advisor |
| _____ | _____ |
| Date | Susan J. Rayl, Ph.D.<br>Committee Member |
| _____ | _____ |
| Date | Philip J. Buckenmeyer, Ph.D.<br>Committee Member |
| _____ | _____ |
| Date | Eileen Gravani, Ph.D.<br>Associate Dean, Professional Studies |

## ABSTRACT

The purpose of this study was to develop an understanding of women's training behavior in the weight room. A secondary purpose was to determine what their beliefs and perceptions were in regards to lifting weights. Participants were college-aged females ranging in age from 17-29 years. Observations of weight lifting activities were conducted during peak hours of operation (Mondays, Wednesdays, and Fridays from 3-6pm) in the fitness facility. A total of 60 hours of observations were conducted over a period of four weeks. In addition to observations, two focus groups were conducted. Participants were divided into two specific groups: I lift weights (Group A) and I do not lift weights (Group B). Observed frequencies indicated that 82.5% ($n$ = 94) of the total population ($N$ = 114) used machines. As such, the findings from this analysis suggest that an overwhelming number of college-age women use machines as compared to free weights during peak hours.

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# CHAPTER 1

# Introduction

## Background

The American College of Sports Medicine has highlighted the importance of strength training as an integral component of exercise regiments. Strength training elicits numerous benefits such as increased muscular strength and endurance, lean body mass, increased bone density, and physical functioning (Gao & Kosma, 2008). Even still, Gao and Kosma (2008) stated that only 15.1% of young adults aged 17-29 years regularly engage in resistance training. Kilpatrick and colleagues (2005) asserted that college students do not exercise regularly and are not regarded as "physically fit." Similarly, according to Harne and Bixby (2005), the gender gap in sport and fitness continues to grow as women, more specifically college-aged women, show the largest decline in physical activity. Furthermore, they illustrated that despite the evident psychological and physiological benefits associated with strength training, the number of women who engage in strength training is relatively low.

According to Dworkin (2001), women in today's society have an immense fear of lifting weights. She suggests that this fear is a cause of the compilation of media influence and society's expectations of femininity. The ideal body shape for women in Western cultures is slim, yet toned; muscularity is perceived as inappropriate for women (Grogan et al., 2004). Grogan et al. (2004) suggests that some women believe if they lift weights, they will look like a bodybuilder, which is an appearance condemned by society. According to Dworkin (2001), women in fitness share an extreme fear and distaste of the female bodybuilder's body; women fear the wrong type of exercise could cause them to develop an

excessively muscular physique. This common belief amongst women may prevent them from engaging in certain activities (e.g., lifting weights) in the weight room.

Femininity is a cultural ideal affecting all women, especially women who are athletic (Krane, 2001). Krane (2001) asserts that women in Western society have a cultural expectation of conforming to traditional hegemonic feminine behaviors. Such behaviors consist of passiveness, dependency, compassion, and being emotional (Krane, 2001). The concept of hegemonic femininity is centered on the emphasis of women to maintain the ideal feminine body (Krane et al., 2004). According to Dworkin (2001), women who strive to attain this ideal body conform to society's expectations of femininity, and hold back from lifting weights.

**Statement of Purpose**

The purpose of this study is to develop an understanding of women's training behavior in the weight room. A secondary purpose is to determine what their beliefs and perceptions were in regards to lifting weights.

As the gender gap in sport and fitness continues to grow, more specifically among college-aged females, it is pertinent for health and fitness professionals to discover ways to increase women's participation in strength training (Harne & Bixby, 2005). By examining the frequency of resistance training among female college-aged students the researcher hopes to bring additional clarity to the topic.

**Research Questions**

The following questions were examined:

1. Do more women use machines rather than free weights during peak hours at a college fitness facility?

2. Do women who lift weights (free weight or machines) workout with a lifting companion?
3. What are the attitudes and perceptions of college-aged women in regards to their lifting behaviors?

**Hypotheses**

The hypotheses of this study were as follows:

1. More women would use machines rather than free weights during peak hours.
2. The women who used the free weight areas would most likely be with a lifting companion rather than alone.

**Limitations**

The following study was limited by:

1. The number of women who engaged in physical activity during peak hours may not be representative of all the women who work out in the facility.
2. Women may not have been comfortable discussing their beliefs in regards to resistance training during the focus group interviews.

**Delimitations**

The following study was delimited by:

1. The study was conducted during the last few weeks of the spring semester.
2. The observations conducted in this study were limited to one fitness facility.
3. The population was restricted to female college-aged students.

**Assumptions**

The following study assumed:

1. The women who work out during peak hours were representative of other female patrons of the facility.
2. The participants in the focus group interviews honestly conveyed their perceptions and beliefs in regards to resistance training

**Definition of Terms**

Cardio: aerobic activity such as treadmill, elliptical, stepper or stationary bike.

Peak hours: the time frame when the fitness facility contains the most amount of people (3-6 pm).

Femininity: is depicted through the differences between the sexes (Humberstone, 2001)

Hegemony: the control of the consciousness by cultural dominance through the institutions of society (Humberstone, 2001).

Resistance training: any training that uses a resistance to the force of muscular contraction (Harne & Bixby, 2005). Resistance training, strength training and lifting weights were all used interchangeably.

# CHAPTER 2

## Review of Literature

### Introduction

The purpose of this study was to develop an understanding of women's training behavior in the weight room. More specifically, the researcher examined: a) the frequency of women who engaged in resistance training by use of machines or free weights, b) the presence of a lifting companion while working out on machines or free weights, and c) the attitudes and perceptions of college-aged women in regards to their lifting behaviors.

This literature review chapter will be presented in the following sections: a) sex vs. gender, b) the media, muscularity, and the "ideal" female body, c) the female bodybuilder, and, d) women in fitness.

### Sex vs. Gender

Sex refers to the differences between men and women based upon biological makeup (Schmakz & Kersetter, 2006). Simply stated, men and women inhabit different bodies (Klomsten et al., 2004).

Gender refers to the exhibition of femininity and masculinity (Klomsten et al., 2004). Thus, according to Krane (2001), gender is regarded as a performative act. Similarly, Roth and Basow (2004) claim "gender is not a given nor something inscribed upon us. We perform gender by doing femininity and masculinity" (p. 246). According to Ross and Shinew (2008), gender is a social construction that is constantly negotiated on both a conscious and unconscious level. Within the context of sport, women consciously negotiate and behave in ways that exemplify and emphasize their perceived femininity (Krane, 2001).

According to Mealey (1997), the biological differences between individuals are magnified or diminished through the process of socialization. The socialization of gender appropriate behaviors is taught to individuals through participation in sports and physical activity (Hardin et al., 2005). Women are socialized to utilize and display their bodies as a means of asesthetic pleasure for others (Klomsten et al., 2005; Koivula, 2001). Koivula (2001) suggests that women are taught to use their bodies and "value themselves based on their passive ornamental qualities through the masculine eyes of others, and to compare their appearance with that of the dominant feminine ideal" (p. 378). Krane (2001) argues that women actively aim to exude the culturally accepted ideal body, thus performing femininity and conforming to hegemonic feminine standards of beauty.

**Gender Roles.**

Schmalz and Kerstetteer (2006) assert that by the age of two, children acknowledge gender stigmas and conform to cultural norms. Furthermore, Schmalz and Kerstetter (2006) found children's cognizance of gender stereotypes in sport influences their willingness to participate. According to Klomsten et al. (2005), parents are most influential in the socialization of gender roles in young children. As such, a parent's perception of gender appropriate activities may directly affect their child's participation in sports and physical activity (Klomsten et al., 2005; Schmalz & Kerstetter, 2006).

Guillet and colleagues (2006) claim gender stereotypes are most influential and consequential during the period of adolescence. Thus, the immense social pressure to conform to gender stereotypes is most prevalent during the transition from childhood to womanhood. According to Hills (2007), young girls are most attentive to the evolvement of

their bodies during the period of adolescence in order to ensure their physicality correlates with acceptable social norms.

Klomsten and colleagues (2004) suggest that girls may abstain from participating in sports or physical activities in which the body is utilized in conjunction with strength, as this presents a conflict in gender role. Individuals who engage in activities considered as gender inappropriate are at risk of being stigmatized (Schmalz & Kerstetter, 2006). Consequently, in an effort to avoid risking their femininity, girls may withdraw or refrain entirely from participating in sport and physical activity (Guillet et al., 2006). Therefore, the manifestation of gender stereotypes influences women or girls willingness to participate in certain sports and physical activities (Alley & Hicks, 2005).

Li et al. (2004) defined stereotypes as an over-generalization about certain characteristics of members in a social group. Gender stereotypes are rooted deep within Western society and contribute to how participation in sport is perceived and understood (Klomsten et al., 2005). According to Hardin and Greer (2009), "gender stereotyping is a ubiquitous, invisible regulator of relationships and opportunities" (p. 208).

Schmalz and Kerstetter (2006) suggest stereotypes are acquired through the social environment, social influences, and socialization agents (e.g., media, community, and family). Guillet and colleagues (2006) assert every sport embodies characteristics of femininity and masculinity that comply with cultural stereotypes. As a result, activities become labeled as suitable for each sex. Thus, the culturally-induced constructs of femininity and masculinity, which perpetuate traditional stereotypes, preclude women from participating in certain types of sports and physical activity (Ross & Shinew, 2008; Li et al., 2006).

**Gender-Typed-Sports.**

Guillet and colleagues (2006) contend that activities in society are sex-typed. As such, gender role conformity prevents individuals from engaging in sports and physical activities which infringe on gender boundaries (Guillet et al., 2006). According to Alley and Hicks (2005), feminine congruous sports accentuate bodily displays and advocate individual instead of team sporting activities (Alley & Hicks, 2005); they exude aesthetic characteristics such as beauty, grace, and elegance (Klomsten et al., 2005). Activities such as football, basketball, and weight lifting are considered masculine appropriate activities (Hardin & Greer, 2009; Li et al., 2006; Koivula, 2001), while activities such as aerobics, gymnastics, and dance are considered feminine appropriate activities (Hardin & Greer, 2009; Li et al., 2006; Koivula, 2001). The perceived characteristics of feminine sports were strongly related to appearance and attractiveness while the perceived characteristics of masculine sports were strongly related to danger, risk, and speed (Koivula, 2001).

**The Media, Muscularity, and The Ideal Feminine Body**

In Western society, judgments of beauty are reflective of culturally accepted ideals and behaviors (Choi, 2003). Women have a cultural expectation of conforming to traditional hegemonic feminine behaviors (Krane, 2001). As such, women have historically transcended their bodies to conform to the evolving ideals of beauty (Wiseman et al., 1992).

According to Forbes and colleagues (2004), the standard of female attractiveness has evolved from the curvy, hourglass physique of the 1950's to a modified thinner physique in the 1960's. Markula (1995) suggests that the ideal feminine body in the 1970's and 1980's was characterized as "shapely, slender, and softly curvy" (p. 431). As such, muscles were seen as incongruous with the ideal feminine body in Western society (Markula, 1995; Krane,

2001; Krane et al., 2004; Grogan et al., 2004; Choi, 2003; Brace-Govan, 2004; Forbes et al., 2004). Slenderness embodies femininity and exemplifies attenuated power (Bordo, 1990; Markula, 1995).

The media has played a critical role in establishing the negative stigmas associated with females and muscularity by the representation of an unattainable, unrealistic appearance (Markula, 1995; Hargreaves & Tiggermann, 2003; Dixon, 2008) of the female body. The media's feminine ideal exudes women as beautiful, small, thin, and weak. As a result of this depiction, women have begun to strive to attain the ideal of femininity by "constructing their bodies through the self-disciplines of dieting, exercise, hair removal, and cosmetic use" (Roth & Basow, 2004, p. 249). Through the media, women are socially pressured to maintain a slender body (Grogan et al., 2004).

According to Grogan et al. (2004), "Slimness is a valued attribute for women and is associated with attractiveness, self-control, social skill, occupational success, and youth" (p. 49). Furthermore, Henry et al. (2005) suggests,

> Thinness has increasingly been associated with a highly valued personal achievement, demonstrating self-control, autonomy, and success. The pursuit of thinness is commonly perceived as an action or goal in which young women can obtain favorable social responses thereby enhancing self-esteem. (p. 283)

The female thin-ideal image has permeated through Western media; exposure to this ideal through television and magazines has become unavoidable (Hargreaves & Tiggermann, 2003). The images of slim and beautiful models are permeated throughout popular women's magazines. As such, muscularity in women has been condemned through the media for over thirty years (Markula, 1995).

According to Botta (2003), the drive for thinness in both adolescent and college-aged females has been correlated to reading health and fitness magazines (Botta, 2003). Botta

(2003) found that adolescent girls abstained from participating in activities exuding muscularity based on their comparison to thin fashion models in health and fitness magazines. Moreover, Humberstone (2001) stated the images in these magazines often convey sport as "unfeminine" thus causing many women to abstain from participating in sports and physical activity.

The current standard of physical attractiveness is not solely contingent upon thinness (Forbes et al., 2004); through the rise of participation of women in sport and exercise, the culturally accepted ideal shape for women has shifted from very slim, to a firm, toned and more muscular physique (Choi, 2003; Markula, 1995; Krane, 2001; Krane et al., 2004; Grogan et al., 2004; Brace-Govan, 2004; Forbes et al., 2004). Thus, the ideal body shape encompasses more than slenderness, it embodies an athletic, tight look as well. Western society has come to accept this ideal, which exudes femininity and athleticism, as the ultimate feminine appearance (Grogan et al., 2004; Choi, 2003; Markula, 1995). Even still, excessive muscular development is considered undesirable and unattractive (Markula, 1995; Choi, 2003).

Markula (1995) suggests women revere toned, defined muscles but exude aversion towards the acquisition of big, bulky muscles. In Forbes and colleagues (2004) investigation of the perceptions of college-aged students, participants considered excessive muscular development in women as undesirable. An inordinately muscular feminine body denotes masculinity and therefore transgresses gender dichotomy (Markula, 1995; Choi, 2003). Women with "bulging muscles and popping veins represent a severe challenge to traditional gender typing" (Forbes et al., 2004, p. 489). As such, muscularity is therefore regarded as inappropriate for women (Grogan et al., 2004).

**Media and Fitness**.

Hardin and colleagues (2005) analyzed images from popular women's magazines and found that *Shape* magazine insidiously reinforced sexual difference by portraying women as passive and participating in mostly non-sporting activities, thus emphasizing appearance as the most pertinent aspect of women's participation in sport and physical activity. Similarly, Klomsten and colleagues (2005) found that high school girls valued appearance attributions more than they did strength. They concluded that girls are more influenced by socializing agents such as the media in regards to the ideal feminine body (Klomsten et al., 2005).

Although it was found that *Shape* magazine conforms to hegemonic feminine standards, the magazine did portray women engaging in strength sports, within acceptable boundaries of size and bulk, more than any other magazine (Hardin et al., 2005). Even still, the exemplification of women in the media does not depict the diversity that exists among female bodies; the media conveys homogenous images, eliminating any visible differences (Hardin et al., 2005; Krane et al., 2004). According to Markula (1995), "the images in the media sexualize and objectify women as they emphasize appearance rather than fitness" (p. 444).

Women's magazines epitomize society's oppressive ideology of femininity (Markula, 1995). Scott-Dixon (2008) argues that women are avid consumers of health and fitness information; therefore, examining the "facts" contained in mass media is a crucial and pertinent task (Scott-Dixon, 2008). Scott-Dixon (2008) further suggests that information in women's magazines pertaining to science and physiology often contains inaccurate claims. The media's portrayal of "physiology as simplistic and mechanistic" (Dixon, 2008, p. 24)

significantly impacts the behaviors of women in fitness based on false perceptions of the truth.

According to Markula (1995), the fear of visible muscle growth and lost femininity due to physical activity were commonly addressed in fitness magazines. Furthermore, Markula (1995) also noted how fitness magazines instructed women how to exercise "correctly" to avoid gaining muscle mass. An article from *Shape* magazine proclaimed,

> The way to strength without mass is to exercise against low resistance, but with a higher number of repetitions…muscles will increase a bit in size, but combining the resistance/repetition formula with your body's female hormones will prevent your legs from becoming locker room curiosities. (p. 432)

According to Markula (1995), Jane Fonda transformed the culturally-accepted female image; the ideal body now encompassed muscularity in an appealing manner. This newly accepted cultural shift of muscularity as an aspect of the ideal feminine image provoked fitness magazines to create solutions to aid women in attaining this new feminine appearance. In 1990, *Shape* magazine introduced the concept of "spot training" to society. According to Markula (1995), spot training focused on isolating one muscle group at a time in an effort to attain desired muscle tone. Exercises portrayed in *Shape* and *Self* magazines proclaimed that spot training was an effective means of developing muscle tone; isolating individual muscles without wasting time conditioning the undesired muscles (Markula, 1995). Spot reducing evolved from the concept of spot training. Magazine articles began pointing out problem areas on the female body and offered advice on how to "reduce" those areas deemed as problematic. The "problem areas" conveyed to women were considered as the upper arms, abdomen, and outer thighs (Markula, 1995).

**The Female Bodybuilder**

Stigmas created by the media's negative depiction of femininity 30 years ago still impact women's behaviors in regards to exercise (Markula, 1995; Scott-Dixon, 2008; Hardin et al., 2005). Society condemns women who develop substantially visible and excessive muscle, in a manner equated to men (Brace-Govan, 2004). The image of the overtly muscular woman mitigates the visible differences between the sexes and thus threatens male dominance (Brace-Govan, 2004; Markula, 1995). More specifically, Brace-Govan (2004) suggests that the image of the woman bodybuilder, especially a very muscular woman, undermines the commonly perceived naturalness of masculine strength.

The permeation of women into traditionally male sporting sites affords women an opportunity to challenge sport as it is defined and contained through hegemonic masculine standards (Humberstone, 2001). As such, "sporting activity allows women to experience their bodies as strong and powerful and free from male domination" (Ross & Shinew, 2008, p. 53). Women who engage in strength and power-based sports exude pride and accomplishment in their visibly strong physiques (Scott-Dixon, 2008). Bodybuilding is now regarded as an empowering practice for women (Grogan et al., 2004).

In their research, Grogan and colleagues (2004) discussed how women bodybuilders felt a sense of empowerment, knowing that men felt threatened by their muscularity. They found enhanced self-esteem and confidence was unequivocally correlated to considerable muscular development in women. Similarly, Bordo (1990) also noted that engaging in the attainment of muscular strength prompted women to exude heightened self-mastery and power.

### Challenges to the Female Bodybuliding Aesthetic.

Despite the progress women were making in the weight room, Krane and colleagues (2004) still found a fine line of acceptable and attractive muscle tone in women. Similarly, Grogan and colleagues (2004) noted "the acceptable degree of muscularity was clearly limited, as being huge would mean that you were seen as a freak…" (p. 55

Women who participate in masculine sports (e.g., bodybuilding) still face considerable contradictions (Mennesson, 2000; Krane, 2001, Humberstone, 2001). As Krane (2001) asserts, "Athleticism and femininity are contradictory; females have to go out of their way to show they can be athletic and socially accepted" (p. 122). To avoid discrimination in society, sportswomen who embody masculine characteristics must also emanate sexual allure to detract from physical displays of power (Ross & Shinew, 2008; Krane, 2001; Roth & Basow, 2004). Hence, athleticism must embody sexual appeal, which is in accordance with hegemonic femininity (Roth & Basow, 2004).

## Weightlifting Behaviors Among Women

Weightlifting is regarded as a means to achieve formidable muscular strength and development by lifting heavy weights with the sole focus on physical strength, not appearance as in bodybuilding (Brace-Govan, 2004). Even still, society limits women's participation in weightlifting by conflating muscularity with masculinity (Brace-Govan, 2004). Weightlifting is considered a male domain (Scott-Dixon, 2008; Brace-Govan, 2004). As such, women's involvement in fitness, more specifically in the weight room, exposes a "gendered nature in a gendered space" (Brace-Govan, 2004, p. 509). Women who challenge hegemonic masculine ideals by entering into the male-only territory of the gym face

considerable ambiguities and barriers (Dworkin, 2001; Humberstone, 2001; Scott-Dixon, 2008; Brace-Govan, 2004).

According to research by Brace-Govan (2004), male power and control was found to be evident in the weight room. In her study, women noted feeling more intimidated in "masculine gyms;" however, this intimidation was negotiated when working out with a lifting companion (Brace-Govan, 2004). Dworkin (2001) and Choi (2003) also found that some women refrain from lifting weights and deliberately evade the weight room.

**Benefits and Barriers to Strength Training in College Women.**

Health benefits associated with exercise and physical activity, more specifically strength training, have been well-documented throughout research (Harne & Bixby, 2005; Zao & Kasmo, 2008; Chu et al., 2008; Kilpatrick et al., 2005; Henry et al., 2006; Ginis et al., 2005; Dworkin, 2001 ; Bowker et al., 2001). Strength training elicits many physiological benefits in women, including (but not limited to): enhanced physical functioning, muscular strength, the development of lean body mass, an increase in bone mineral density, as well as decreased body fat percentage. Research has illustrated that college-aged women, regardless of whether they engage in strength training or not, are cognizant of the concomitant psychological and physiological health benefits pertaining to strength training (Harne & Bixby, 2005; Henry et al., 2005). However, despite the known benefits, the amount of women who engage in strength training is relatively low (Gao & Kosma, 2008; Harne & Bixby, 2005). Gao and Kosma (2008) argue that this is due to an inadequate emphasis on promoting the participation in weight training exercises.

College-aged women exhibit more apprehensions than do men in regards to their body weight (Kilpatrick et al., 2005). Chu and colleagues (2008) assert that these

apprehensions hinder college women's participation in exercise and physical activity. Consequently, these individuals who do not engage in habitual exercise exude anxiety in regards to how others perceive their physique (Chu et al., 2008).

In their research, Henry et al. (2005) illustrated how exercise elicited heightened self-esteem and body image in college-aged women. Similarly, Martin Ginis et al. (2005) also discussed the benefits of strength training. Namely, in their participants strength training was able to invoke a positive, stronger body ideal and enhanced self-esteem (Martin Ginis et al., 2005).

**Exercise Selection Among College-Aged Women.**

Chu et al. (2008) found a strong correlation between college women and cardiorespiratory activity whereas college men showed a strong correlation in regards to resistance training. Similarly, previous research by Dworkin (2001) also found women to favor cardiovascular activity over any other mode of exercise. While the aforementioned research has shown that women typically prefer to engage in cardiovascular activity, this does not mean they do not engage in strength training activities. Ross and Shinew (2008) found women engaged in strength training to elicit enhanced muscular development. Furthermore, they suggested that these women were more accepting and comfortable with their strong, muscular physiques and did not exude apprehensions regarding the weight room (Ross & Shinew, 2008).

Henry and colleagues (2005) examined the impact of interval circuit training and aerobic training on body image in untrained college females. They found that a combination of circuit training, including anaerobic and aerobic exercise, was the most beneficial to health and fitness levels. Participants had greater $VO_2$ max capacity as well as lower percent body

fat than the aerobic training group, suggesting that strength training enhanced body image and physiological capabilities more so than any other form of training (Henry et al., 2005).

Harne and Bixby (2005) examined barriers to strength training among college-aged women. They found that women who engaged in strength training were devoid of any perceived barriers. However, for those women who did not strength train, time-effort was found to be the most significant barrier to strength training (Harne & Bixby, 2005). This finding is consistent with Dworkin (2001), who found that women who were classified as "nonlifters" asserted that a lack of time withheld them from engaging in strength training.

**Summary and Rationale**

Female participation in sport has grown immensely throughout the past three decades with increasingly equal opportunities for both men and women; however, social attitudes remain unchanged (Daniels & Leaper, 2006). Women have always been encouraged to exercise as a means of taking care of their bodies; however, the media has played a critical role in establishing the negative stigmas associated with females and muscularity (Markula, 1995). Women have an immense fear of lifting weights. This has been cultivated by the media's negative influence and stereotypes about women and muscularity, which still permeate Western society. As a result, many women still hold back from engaging in resistance training (Markula, 1995; Dworkin, 2001; Choi et al., 2003). The ambiguities and barriers encountered by women in fitness limit their participation, and elicit the self-imposed "glass ceiling" on their muscular strength and ability in regards to lifting weights (Choi, 2003; Dworkin, 2001; Roth & Basow, 2004; Humberstone, 2001).

# CHAPTER 3

## Methodology

The purpose of this study was to develop an understanding of women's training behavior in the weight room. More specifically, the researcher examined: a) the frequency of women who engaged in resistance training by use of machines or free weights, b) the presence of a lifting companion while working out on machines or free weights, and c) the attitudes and perceptions of college-aged women in regards to their lifting behaviors.

This methodology chapter will be presented in the following sections: a) Research Design, b) Observational Variables, c) Validity and Reliability, d) Participants, e) Data Collection, and f) Data Analysis.

### Research Design

The descriptive method of observational analysis was chosen for this study. Similar to qualitative research, the aim of descriptive research is to gather data without any manipulation of the research setting (Glesne, 1999). The purpose of observational data is to describe settings, people, and activities (Hoepfl, 1997). According to Thomas and colleagues (2005), observing behavior qualitatively and analyzing the observations quantitatively yields more accurate data. Frequency counting was employed as a means of recording data. Two focus groups were also conducted in order to gain insight as to why women do or do not lift weights. According to Rabiee (2004), focus group interviews afford ample data in a short duration of time.

### Procedures

An observational analysis was conducted in an effort to examine the behaviors of college-aged female students in the weight room. More specifically, this analysis

examined: a) how many females entered the fitness facility during peak hours, b) of these females, how many ventured over to each of the designated free weight sections or resistance machines, c) were they by themselves or was there another individual accompanying them, and, if so, d) were they male or female. The fitness facility was divided into three observed sections: the large free weight area, the small free weight area, and the resistance machines. The observations were conducted during peak hours (Mondays, Wednesdays, and Fridays from 3-7pm) in the fitness facility. A total of 60 hours of observations were conducted over a period of four weeks.

In addition to observations, two focus groups were conducted and participants were divided into two specific groups: I lift weights (Group A) or I do not lift weights (Group B). The participants in both focus groups were recruited from a variety of courses within the Kinesiology Department and due to the anonymous nature of the study, very little demographic information was collected. The focus groups were conducted during the end of the spring semester and each focus group lasted approximately 90 minutes. A semi-structured interview guide was developed prior to conducting the focus group interviews. Refreshments were provided to the participants of both focus group interviews.

**Participants**

The observed participants in this study were college-aged women between the ages of 17 and 29 years. A total of 114 (N=114) women were observed during designated peak hours engaging in resistance training. Due to the naturalistic, unobtrusive method of observations which were conducted in this study, the participants were not aware of the researcher's presence, thus no other demographic information was collected**.**

**Focus Group Participants.**

The characteristics of the participants in Group A (I lift weights) were college-aged females who participated in some form of resistance training. There were six participants; all of the six participants did not work out in the fitness facility during the designated peak hours (3-6pm). One of the participants was a member of a sports team at the college and another was a certified personal trainer. As for the remaining four participants, they did not disclose any other information pertaining to their fitness backgrounds.

The characteristics of the participants in Group B (I do not lift weights) were college-aged females who did not regularly participate in resistance training. This group had six participants who volunteered to participate in the focus group. All six of the participants did not lift weights. Two of the participants were Athletic Training majors, two were Physical Education majors, another participant was a runner, and the last participant did not disclose any background information about herself.

## Data Collection

Descriptive methods enable a researcher to prudently describe and comprehend behavior (Sandelowski, 2001). Unobtrusive research techniques were utilized in this study to control for threats to external validity.

**Observations.**

The researcher maintained a passive presence and did not have any interactions with the participants during the fieldwork observations. According to Glesne (1999), naturalistic observation, observing behavior in a natural setting without any interference, must be conducted as discretely as possible.

### Focus Groups.

Focus group interviews generate meaningful and beneficial information due to the sensitive nature of some topics (Glesne, 1999). Furthermore, "the uniqueness of a focus group is its ability to generate data based on the synergy of the group interaction" (Fabiee, 2004, p. 656). Informed consent was obtained from all the participants in each focus group. The scripts for the focus groups were developed prior to each interview (see appendix B). Each focus group interview was recorded and then transcribed verbatim (Rabiee, 2004; Nelson et al., 2009).

## Data Analysis

Nominal measures of behavior were recorded during the study and then quantified into frequency distributions. Two simple Chi Square analyses were conducted to compare the frequencies of weight training in each section (small free weight area, large free weight area, resistance machines) during peak hours and to examine the association of companions in each area.

Data from the focus groups were analyzed so that themes and relevant concepts were extrapolated. The overall theme was analogous among both focus group interviews, thus the results from both interviews were integrated together (Nelson et al., 2009).

# CHAPTER 4

## Results and Discussion

The purpose of this study was to develop an understanding of women's training behavior in the weight room. More specifically, the researcher examined: a) the frequency of women who engaged in resistance training by use of machines or free weights, b) the presence of a lifting companion while working out on machines or free weights, and c) the attitudes and perceptions of college-aged women in regards to their lifting behaviors.

### Observational Analysis Results

Of the 838 women who were present in the fitness facility during observed peak hours, a total of 114 women engaged in resistance training (see Table 1.1). Observed frequencies indicated that 82.5% ($n$ = 94) of the total observed population ($n$ = 114) used machines, and 84.2% ($n$ = 96) of the total observed population worked out alone in all three of the areas in the fitness facility. A 3x4 Chi Square test of independence was performed which examined the relationship between area in the fitness facility and type of lifting companion in college-aged females during peak hours (see Table 1.2 for categorical data set). The relationship between these variables was significant: $X^2(6, N = 114) = 26.58$, $p = .0005$. The association was of moderate strength: $V = .341$. Cramer's $V$ was chosen as a measure of effect size for this analysis due to the large sample size.

Table 1.1 Total number of women present in fitness facility during observed hours

| Total number of women in facility during peak hours | Total number of observed women |
|---|---|
| 838 | 114 |

Table 1.2 Lifting partner in three different areas in the fitness facility *

| | Alone | Female Partner | Male Partner | Personal Trainer | Totals |
|---|---|---|---|---|---|
| Large Free Weight Area | 4 | 0 | 1 | 1 | 6 |
| Small Free Weight Area | 14 | 0 | 0 | 0 | 14 |
| Machines | 78 | 14 | 2 | 0 | 94 |
| Totals | 96 | 14 | 3 | 1 | 114 |

*$N = 114$

The results from the analysis showed a significant association between area in the weight room and lifting companion, $p < .05$. The research hypothesis stating that more women will use machines rather than free weights during peak hours was ascertained by the analysis ($n = 94$). The researcher further hypothesized that women who use the free weight areas will most likely be accompanied by a lifting companion. However, of the 17.6% ($n = 20$) of women who used the free weight areas, only 1.8% ($n = 2$) were accompanied by a lifting companion; 0.9% ($n=1$) were male and 0.9% ($n=1$) were female. Consequently, none of the observed females in the small free weight area were accompanied by a lifting companion ($n = 14$).

**Focus Group Results**

Only one theme emerged from the focus groups: the ideal female body. The theme will be addressed in the following section.

**Theme #1: The Ideal Body.**

The participants (N = 12) in both focus groups were asked several questions (see Appendix B) pertaining to their beliefs and perceptions regarding resistance training. From their responses, the common theme of the ideal body was extrapolated.

All six of the participants in Focus Group A expressed a desire to attain an ideal physique. All of the participants suggested they lifted weights as a means of achieving

weight loss and other health benefits associated with exercise and physical activity. As one participant stated, "I lift weights to stay skinny and lose weight." Similarly, another participant stated, "I like being thin, I don't want to bulk up."

All of the participants in Focus Group A admired the thin and toned body type exuded by celebrities. Four of the participants compared the ideal body to the physique of celebrities in the media. One participant stated, "Victoria Secret models have no body fat but huge boobs." While another participant expanded on the aforementioned quotation and stated that "they (Victoria Secret Models) have no fat on their bodies, you can see their muscle, and their thighs don't touch."

All the participants in Focus Group A regarded the physique of women bodybuilders as "unattractive and undesirable." As one participant stated, "guys don't find muscular, big, bulky girls attractive." Likewise, an additional participant stated, "I don't want to have huge biceps or huge shoulders." To the participants, bulky was regarded as synonymous with excessive muscular development.

**Discussion**

The findings from this analysis suggest than an overwhelming number of women use machines as compared to free weights during peak hours. More specifically, 84.2% of women used resistance machines during peak hours. This finding is not in accordance with previous research. Dworkin (2001) found that women favored cardiovascular exercise over resistance training by use of free weights or machines. Furthermore, Mealey (1997) also found women devoted more time in the gym to aerobics rather than engage in resistance training.

A majority of the women who were observed engaging in resistance training, used machines versus free weights during peak hours. This finding is consistent with previous research. According to Brace-Govan (2004), free weights are conflated with masculinity and fixed weights are regarded as acceptable for women.

While previous research suggests that gyms are gendered spaces where men have control over the free weight areas (Brace-Govan, 2004), the women in this study entered the "male only territory" without a lifting companion. Of the women who engaged in any form of weight lifting, by use of machines or free weights, a lifting companion did not accompany most.

The overall theme of "the ideal body" was expressed among all of the participants in Focus Group A (I lift weights). This finding is consistent with previous research; Grogan and colleagues (2004) affirm the ideal body for women in Western society is slim and toned.

Consistent with previous research, participants in this study described "the ideal body" as the homogenous image portrayed throughout media (Dworkin, 2001; Kiovula, 2001; Krane, 2001). It was evident that there is "immense social pressure to conform to a highly restrictive, underweight ideal (Scott-Dixon, 2008, p.32).

Although women engaged in resistance training, there was a clear boundary of acceptable muscular development. This finding is also consistent with previous research (Krane, 2001; Krane et al., 2004; Dworkin, 2001), "participants described a seemingly arbitrary line that demarcated too much muscle from attractive muscle tone in women" (Krane et al., 2004, p. 320).

# CHAPTER 5

## Summary, Conclusions, and Recommendations

### Summary

The purpose of this study was to develop an understanding as to what women in fitness do in the weight room and what their beliefs and perceptions were in regards to lifting weights. To better understand the behaviors expressed by women in the weight room, the frequency of use of three different sections in the fitness facility were observed during peak hours to examine whether there was an association between lifting companion, and the section of the fitness facility where they worked out. In addition to observations, two focus groups were conducted to discern and interpret the beliefs and perceptions of college-aged women in regards to lifting weights, more specifically: media pressure to be thin, motivational factors, acquisition of health and fitness knowledge, significance of lifting companion, and gender stereotypes associated with muscularity and resistance training. Nominal measures of behavior were recorded during the study and then quantified into frequency distributions. Two simple Chi Square analyses were conducted to compare the frequencies of weight training in each section (small free weight area, large free weight area, resistance machines) during peak hours and to examine the association of companions in each area. Observed frequencies indicated that 82.5% ($n$ = 94) of the total population ($N$ = 114) used machines and 84.2% ($n$ = 96) of the total population worked out alone in all three of the areas in the fitness facility. A 3x4 Chi Square test of independence was performed and found to be significant ($p$ = .0005). The results from the analysis showed a significant association between area in the weight room and lifting companion, $p < .05$. Data from both focus groups showed that college-aged women strive to attain “the ideal body”, which

previous research dictates as a tight and athletically toned physique (Dworkin, 2001; Krane, 2001; Krane et al., 2004).

**Conclusions**

Based upon the data analysis, the following conclusions were made:

1. More women used machines as compared to free weights during peak hours.
2. There was a significant correlation between area of the weight room and lifting companion during peak hours ($p = 0.005$).
3. Participants in the focus group interviews all expressed a desire to achieve the ideal physique.

**Directions for Future Research**

1. To avoid any speculation, further research is needed to better understand these observed behavioral trends. It is pertinent for researchers to decipher this phenomenon to reveal why the majority of women are not engaging in the use of free weights.
2. Future research should aim to utilize both quantitative and qualitative measures under the examination of the same population. In this case, the researcher can make inferences and draw connections based on the compilation of both forms of data analysis (i.e., observational analysis and focus groups).
3. Future research could benefit from examining the influence of an individual's body image concerns on exercise behaviors
4. Acquisitions of health and fitness knowledge in college-aged women may enhance or deter their participation and motivation in strength training. An

extensive survey in this area may help researchers extrapolate deeper meaningful data to encourage women to lift weights.

5. Peak hours could be limited to 5-7pm. Out of the total women observed in this study (N= 114), only ten, (*n*=10) women engaged in strength training in one of the three designated areas between 3-5pm. More research is needed to discern if women have a different peak hour than do men.
6. The participant population needs to be segregated; athletes, physically active women may have different beliefs than college women who do not strength train or do not participate in sports

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# Appendix A

## Institutional Board Approval Letter

SUNY Cortland
Institutional Review Board

MEMORANDUM

| | |
|---|---|
| To: | Melanie Kornblatt |
| From: | Leslie Eaton, Associate Professor of Psychology<br>Institutional Review Board Administrator |
| Date: | 05-11-09 |
| RE: | Institutional Review Board Approval |

In accordance with SUNY Cortland's procedures for human research participant protections, the protocol referenced below has been approved for a period of one year:

| | | | |
|---|---|---|---|
| Title of the study: | Weight Room Behaviors in Female College Students | | |
| Level of review: | Expedited | Protocol number: | 809017 |
| Project start date: | Upon IRB approval | Approval expiration date*: | 05-10-10 |

* Notes: *Please include the protocol expiration date to the bottom of your consent form and recruitment materials.*
For information about continuation policies and procedures, visit http://www.cortland.edu/irb/Applications/continuations.html

The federal Office for Research Protections (OHRP) emphasizes that investigators play a crucial role in protecting the rights and welfare of human subjects and are responsible for carrying out sound ethical research consistent with research plans approved by an IRB. Along with meeting the specific requirements of a particular research study, investigators are responsible for ongoing requirements in the conduct of approved research that include, in summary:

- obtaining and documenting informed consent from the participants and/or from a legally authorized representative prior to the individuals' participation in the research, unless these requirements have been waived by the IRB;
- obtaining prior approval from the IRB for any modifications of (or additions to) the previously approved research: this includes modifications to advertisements and other recruitment materials, changes to the informed consent or child assent, the study design and procedures, addition of research staff or student assistants, etc. (except those alterations necessary to eliminate apparent immediate hazards to subjects, which are then to be reported by email to irb@cortland.edu within three days);
- providing to the IRB prompt reports of any unanticipated problems involving risks to subjects or others;
- following the principles outlined in the Belmont Report, OHRP Policies and Procedures (Title 45, Part 46, Protection of Human Subjects), the SUNY Cortland College Handbook, and SUNY Cortland's IRB Policies and Procedures Manual;
- applying for continuation requests, consistent with SUNY Cortland Policies and Procedures and federal guidelines, prior to the expiration of this approval; and,
- maintaining records as required by the HHS regulations and NYS State law, for at least three years after completion of the study.

Given the topics and methods of research conducted at SUNY Cortland, investigators frequently possess multiple and possibly conflicting role responsibilities. A principle investigator's primary duty is to ensure the protection of research participants during recruitment, participation, and after the study has concluded. In the event that questions or concerns arise about multiple roles or the conduct of research at SUNY Cortland, contact the IRB by email irb@cortland.edu or by telephone at (607)753-2079. You may also contact a member of the IRB who possesses expertise in your discipline or methodology, visit http://www.cortland.edu/irb/members.html to obtain a current list of IRB members.

Sincerely,

Leslie Eaton

For more information about SUNY Cortland's Human Participant Protection Program, visit us on the web:
http://www.cortland.edu/irb

Old Main, Room 134-B • P.O. Box 2000 • Cortland, NY 13045
Phone: (607) 753-2079 • Fax: (607) 753-5437 • email: irb@cortland.edu

## Appendix B

### Semi-Structured Interview Guides

Focus Group A

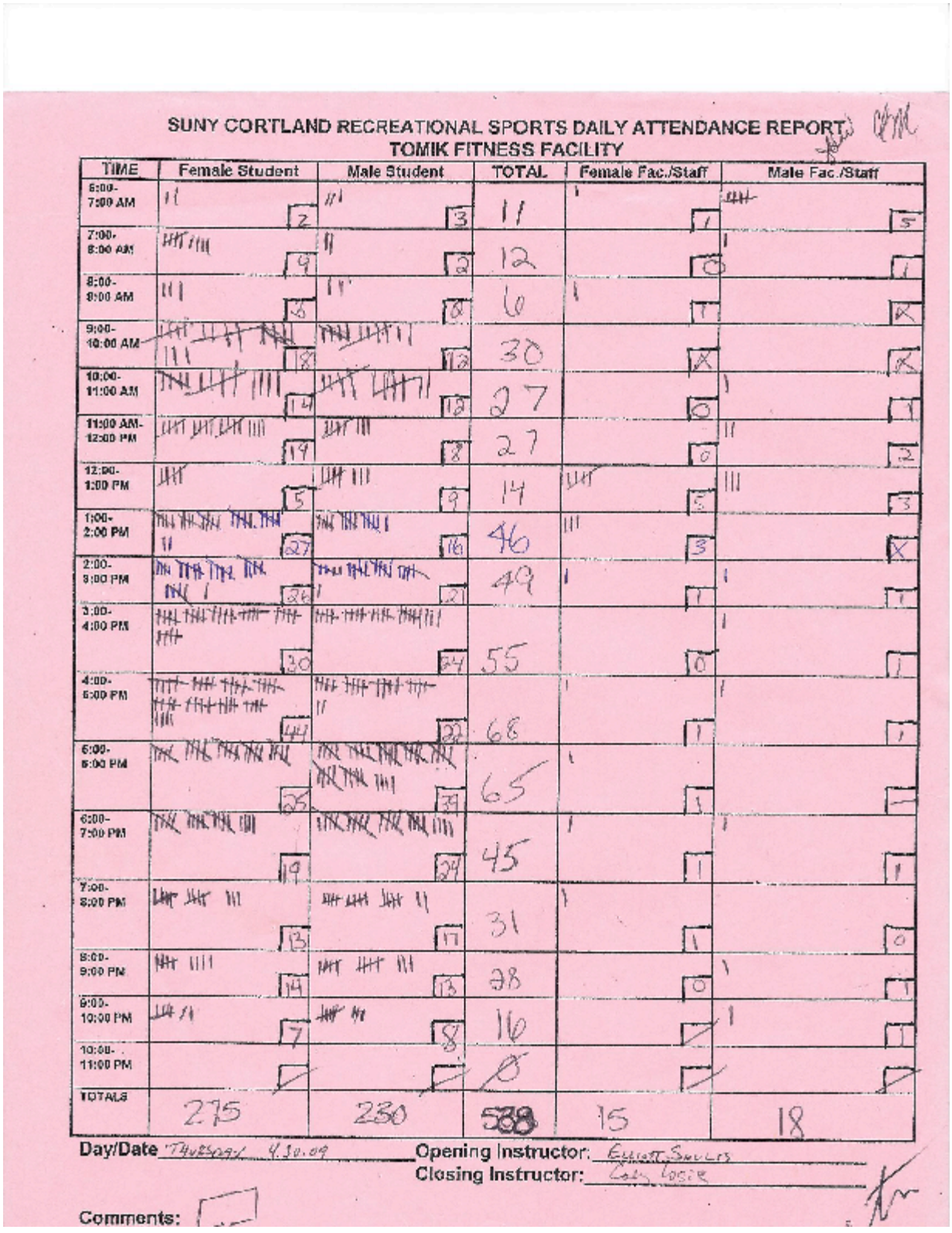
1) Why do you lift weights?
2) What are your perceptions of cultural stereotypes regarding lifting weights?
3) What are your perceptions of the media pressures to be thin?
4) What do you do in the weight room?
5) What does lifting mean to you?
6) When do you prefer to go to the gym?
7) Do you workout alone or do you have a lifting partner?
8) What is your opinion of the ideal female body?

Focus Group B

1) Why don't you lift weights?
2) Why do you think other women do not lift weights?
3) What are your perceptions of cultural stereotypes regarding lifting weights?
4) What is your opinion of the ideal female body?

Appendix C

Sample Tally Sheet



SUNY CORTLAND RECREATIONAL SPORTS DAILY ATTENDANCE REPORT
TOMIK FITNESS FACILITY

| TIME | Female Student | Male Student | TOTAL | Female Fac./Staff | Male Fac./Staff |
|---|---|---|---|---|---|
| 6:00-7:00 AM | 2 | 3 | 11 | 1 | 5 |
| 7:00-8:00 AM | 9 | 2 | 12 | 0 | 1 |
| 8:00-9:00 AM | 6 | 0 | 6 | 1 | K |
| 9:00-10:00 AM | 18 | 12 | 30 | K | K |
| 10:00-11:00 AM | 14 | 12 | 27 | 0 | 1 |
| 11:00 AM-12:00 PM | 19 | 8 | 27 | 0 | 2 |
| 12:00-1:00 PM | 5 | 9 | 14 | 5 | 3 |
| 1:00-2:00 PM | 27 | 16 | 46 | 3 | K |
| 2:00-3:00 PM | 26 | 21 | 49 | 1 | 1 |
| 3:00-4:00 PM | 30 | 24 | 55 | 0 | 1 |
| 4:00-5:00 PM | 44 | 22 | 66 | 1 | 1 |
| 5:00-6:00 PM | 25 | 39 | 65 | 1 | 1 |
| 6:00-7:00 PM | 19 | 24 | 45 | 1 | 1 |
| 7:00-8:00 PM | 13 | 17 | 31 | 1 | 0 |
| 8:00-9:00 PM | 14 | 13 | 28 | 0 | 1 |
| 9:00-10:00 PM | 7 | 8 | 16 | / | 1 |
| 10:00-11:00 PM | / | / | 0 | / | / |
| TOTALS | 275 | 230 | 538 | 15 | 18 |

Day/Date Thurs 09 / 4.30.09 Opening Instructor: Elliott Sellers
Closing Instructor: Cody Logie

Comments: