

EVALUATION OF MELPOMENE
INTERNS AND GIRLS PROJECT:
“ROLE MODELS AND MENTORING”
FOR MELPOMENE INSTITUTE

By

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ABSTRACT

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Evaluation of Melpomene Interns and Girls Project: “Role Models and Mentoring” for
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This research was conducted to evaluate the Melpomene Interns and Girls Project: “Role Models and Mentoring” which is a two-part workshop developed and led by interns through Melpomene Institute. Melpomene is a research and resource facility at which the link between physical activity and girls’ and women’s health is studied. The Melpomene Interns and Girls Project services girls between the ages of 9 and 12 years. The program has been well received by Girl Scout troops in the past two years. The areas of self-esteem, body image, nutrition, and physical activity are addressed. The evaluation was conducted to gather information about the girls’ knowledge of proper nutrition, feelings about body image, benefits of physical activity, level of physical activity, levels of self-esteem, and feelings about the program itself. The surveys were administered at the start

of the workshop, after the completion of both sections of the workshop, and one month after the workshop had taken place.

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CHAPTER ONE

INTRODUCTION

As part of Melpomene Institute's intern program a mentorship program was developed for adolescent girls age 9 to 12 years. Melpomene Institute wanted young girls to have role models who have high self-esteem, healthy eating habits, high energy, a healthy body image, and believe that their high level of physical activity helps them sustain their positive and healthy outlook on life. By reaching out to the community in the Minneapolis/St. Paul Twin Cities area, Melpomene created an avenue of interaction with these young interns and adolescent girls between the ages of 9 and 12 years. The activities were developed by the interns, with guidance from the intern directors, Jeana Rex and Maureen Moo-Dodge. The two-part workshop emphasizes nutrition and physical activity in one unit, and body image and physical activity in the other unit. Since Melpomene Institute is a resource and research facility which studies the link between physical activity and girls' and women's health, the institute wanted emphasis on becoming or maintaining an active lifestyle to be a common thread in both units.

Purpose of the study

The purpose of this study was to evaluate the Mentorship program at the workshops that were conducted Spring semester, 2001, so Melpomene administrators can be aware of the effects of the program on the participants. The administrators would use the evaluation results to make decisions about the program, strengthen the program, and gain additional funding. The purpose of the evaluation was to determine what the girls have learned about body image, self-esteem, healthy choices, and physical activity through the workshop. The evaluation of Melpomene Interns and Girls' Project: "Role

Models and Mentoring” was conducted in accordance with the grant proposed and funded by the Risley Foundation. Evaluation of the current program will allow Melpomene to improve the program, monitor its success, and assess the change in participants’ attitudes and behavior on select variables.

CHAPTER TWO

LITERATURE REVIEW

Adolescent girls and physical activity

The number of girls that are physically active has exploded since the enactment of Title XI, which prohibited sex discrimination in sports in educational settings. Before Title XI, 300,000 girls participated in interscholastic athletics nationwide; today that number has increased to 2.25 million (Bunker, Duncan, Freedson, Greenberg, Oglesby, Sabo, Wiese-Bjornstal, 1997). Despite this increase in sport participation, the country has also seen an increase in inactivity in adolescent girls since 1988 (Hoffman, 1998). Hoffman also states that girls are still less active than boys between the ages of 8 and 16 years. Between ages 12 and 13 years girls' participation in sports drops sharply (Jaffee & Manzer, 1992).

Research studies have shown many benefits in the link between physical activity and girls' health. "The President's Council on Physical Fitness and Sports" in 1997 highlights these benefits in a comprehensive report. The effects of sport on girls' physiological, psychological, sociological health and mental health are discussed (Bunker, et al, 1997).

One physiological benefit highlighted in the report is that physical activity in adolescence can reduce the risk of obesity and hyperlipidemia in girls. Less fat in a girl's body at this young age has been associated with lower incidence of certain cancers and coronary disease as a woman. Physical activity can also help girls reduce the risk of osteoporosis by building greater bone mass during their peak growth rate, which is at age 11 ½ years.

The psychological benefits highlighted in this report are that adolescent girls who were physically active on a regular basis have more positive feelings about body image, improved self-esteem, and increased self-confidence. The report also suggests that the physical activity is an effective tool for reducing stress and depression in girls. As young girls have increased physical activity in their lives, it also shows that their motivation in other parts of their lives has increased.

This report further states that benefits to girls' sociological health can develop by sporting skills leading to increased development of positive social skills. When participating in team sports girls learn to cooperate and negotiate more effectively. They also make new friends and consolidate old friendships.

There is a myth about athletes and academic achievement. Society is used to the phrase "dumb jock", but as pointed out in this report, school administrators are often unaware of the positive interplay between athletics and academic achievements. When they compared grade point average of athletes and non-athletes, the athletic girls fared better than those that did not participate in sports.

Adolescent girls and nutrition

On average girls reach their peak growth rate at age 11.5 years (Tamborlane, 1997). Because of this growth spurt and the changes that occur for females, there are special requirements for the amount of calories and the nutrients they need. A pre-adolescent who competes in sports every day is apt to have a different calorie requirement than one who isn't as physically active. The Recommended Dietary Allowance of calories for girls of this age is 2,200 calories per day (Tamborlane, 1997). This estimate is based on average body weight for an adolescent female, and average

activity levels. In William Tamborlane, M.D.'s book, he defines adolescence as ages 11-14 years, and pre-adolescence as ages 7 – 10 years, information from both of these areas is appropriate for Melpomene's Mentoring Program for girls ages 9 – 12 years.

The amount of vitamins and minerals required for growth and development during adolescence also increases (Tamborlane, 1997). According to the National Institute of Child Health and Human Development (NICHD, 2000), well-balanced diet supplies a good supply of vitamin and minerals, however recent studies show that children and adolescents are not meeting all the recommendations for balanced diets. Many adolescents have an inadequate intake of vegetables, meats and dairy, which leaves them short on their body requirements for iron and calcium (Tamborlane, 1997). Optimal calcium intake is very important during adolescence. Bones grow and incorporate calcium most rapidly during this time period, approximately 90% of all adult bone mass will be established (NICHD, 2000). Nine of ten teenage girls don't meet the RDA requirements for calcium ("Adolescents," 1999). Because bone growth occurs almost exclusively during adolescence, this is the optimal time to ward off the chance of getting osteoporosis when older. The RDA of calcium for adolescent girls is 1300 milligrams for girls age 9 to 13 years (NICHD, 2000). Anything over this amount is mute as the increase in bone density in relation to the amount of calcium consumed plateaus at 1300 milligrams ("Adolescents", 1999). Good sources of calcium are low-fat milk, low-fat milk products, and green leafy vegetables (NICHD, 2000).

Iron is another important mineral for pre-adolescent and adolescent girls. Because of the onset of menses and expansion of blood volume iron is needed at a higher amount at this age for girls (Tamborlane, 1997). The type of iron needed is that obtained

from animal sources such as meat, fish, and poultry, and also in dark-green vegetables, dried fruits and fortified cereals and breads; however, animal sources are more easily absorbed by the body (Tamborlane, 1997). Therefore, it is important to teach girls that meat is good for them and needed at the age of peak growth rate.

For all age groups the key to a healthy diet is a balanced one in adequate amounts. A balanced diet supports normal growth and development and contains the RDA for proteins, fats, carbohydrates, vitamins and minerals (Armstrong, 2000). Fat is an important life support as well, and should not be omitted from a diet. All foods can be part of a balanced diet if eaten in appropriate amounts. For instance, less than 30 percent of calories should come from fat (Armstrong, 2000).

Body image and self-esteem in adolescent girls

Since girls are going through puberty in adolescence a great deal of attention is focused on their bodies (Gowen, 1998). Dr. Gowen's research shows that worries in body image emerged at around age ten, much earlier than previous studies had shown. Overweight youth are more likely to report binge eating, and frequent dieting than nonoverweight youth (Neumark-Sztainer, 1999). Many girls who were overweight reported negative feelings about social interaction (Neumark-Sztainer, 1999).

Adolescence is a time of increasing cognitive understanding of interpersonal relationships because of the focus on oneself and how they are different or like others their age (Lapsley, D., Milstead, M., Quintana, S., Flannery, D., & Buss, R. 1986). A study conducted in 1991 tried to determine if focus on appearance was more salient than the increased focus on other personal qualities (Wadden, T., Brown, G., Foster, F., & Linowitz, J., 1991). They found that girls worried more about their figure and weight

than did boys. Both sexes worried about looks, popularity and relationships, however boys were mostly concerned with money and looks.

Programs for adolescent girls involving physical activity

One program that is designed to increase physical activity in adolescent girls is called, “GO GIRLS!” This program is specifically for African American adolescents who are overweight. The overall goal is to lose weight and the objectives in this goal are to increase knowledge about proper nutrition, increase fruit and vegetable intake, decrease fat intake, decrease fast-food intake, decrease television viewing and increase physical activity (Resincow, Yaroch, Davis, Wang, Lyn, London, Kotler, Hall, 1999). The design of the program includes hands-on cooking experience and physical activity choices with which participants are comfortable. The program’s objective is to help the girls master an activity and learn how to cook healthy meals, instead of just providing them with information.

The program lasts for six months, with the first four months involving biweekly meetings and the last two months only weekly meetings (Resincow et al.,1999). Along with the 30 to 60 minute physical activity, the girls are taught to apply three options for behavior change in eating: substitution, moderation, and abstinence (Resincow et al.,1999). This program was initially conducted in low income development housing districts.

As a result of this program, high attenders significantly raised their nutrition knowledge scores, and reported eating more low-fat foods than did low attenders of the program (Resnicow, Yaroch, Davis, Wang, Carter, Slaughter, Coleman, & Baranowski, 2000). Also, those who were high attenders reported lower kilocalories, and lower

sodium and cholesterol intake but not at a statistically significant level (Resnicow, et al., 2000). There were no significant differences between the low attenders and high attenders in any of the physical measures (Resnicow et al., 2000). The researchers were pleased with the program outcomes, but the drop-out rate was high at approximately 45%.

Another program developed for adolescent girls is called, “FOOD, FUN, and FITNESS.” This program is designed to increase positive body image in girls ages 10 to 12 years (Coller & Neumark-Sztainer, 1999). This body image program, which teaches proper nutrition and increased exercise, also was incorporated into the national Girl Scout program. The overall goal for FOOD, FUN, and FITNESS is to develop positive attitudes toward physical fitness, healthy eating, and body images so that unhealthy behaviors would not develop later in life (Coller & Neumark-Sztainer, 1999).

This program is six weeks in length with one meeting each week. The length of each meeting is ninety minutes, and two meeting times are committed to one focus area, so there are a total of three segments. The segments include: “Enjoy a variety of foods”, “Physical activity is fun”, and “Be proud of yourself-everyone is different”(Coller & Neumark-Sztainer, 1999). These themes are incorporated into enjoyable activities for the participants.

The results of this program showed that the girls liked most of the activities, with the favorite activities involving the topics of dieting, body image, and the media (Coller & Neumark-Sztainer, 1999). Additionally the girls enjoyed the snack, but not the physical activity unit. Changes were minimal with this program in terms of eating attitudes and behaviors(Coller & Neumark-Sztainer, 1999).

Melpomene Institute

Melpomene Institute is named after an inspiring Greek woman who ran the first Olympic marathon in 1896 (www.melpomene.org). Melpomene actually had to disguise herself as a male, as women were not permitted to run in the Olympics at that time. This woman became a mentor of Judy Mahle Lutter, the founder and current president of Melpomene Institute. Judy was active as a very young child, but at the age of ten years was no longer accepted to play with the boys in her neighborhood. They did not want any girls as playmates and thought it was inappropriate. This message was further enforced when the girls and boys began to have separate recess areas and played different games. The boys' activities were much more physical, while the girls sometimes just engaged in chatting (Lutter, 1996).

For Judy, this created a low self-esteem and low self-confidence. Being a little overweight as a youth she decided to retreat into her studies. Time flew by, and soon she found herself to be 33 years old, married, and the mother of three. One day, after a long day of caring for the children, she announced she was going for a run. She needed to get out of the house, and to her surprise she felt better when she was done, even though it was only 200 feet. From that point on Judy ran almost every night, and discovered that this time alone not only helped her physical health, but her mental health as well. Before long women were calling Judy for advice on physical activity and how it affects women's health. Judy tried to find the answers, but realized that there was not a lot of research in this area. With the encouragement of her husband and friends, she decided to provide a place where women and girls could get current information about the link between physical activity and their health. In addition to Melpomene Institute being a resource

center for women and girls, Judy also decided that more research was needed, and that Melpomene would also conduct on-going research in the area of regular physical activity in terms of and how it affects the lives of girls and women throughout their lifespan (Lutter, 1996).

Research is currently being conducted on how regular physical activity may affect the lives of girls who have been abused. Research is also being conducted on the effects of regular physical activity on aging and perimenopause. Some of the other topics that Melpomene Institute has researched in the past are pregnancy, menopause, pre-menstrual syndrome, gender differences in physical activity choices, the role of parents in determining whether their children will be physically active, body-image, self-esteem, physical activity level of adolescent girls, and competition. Melpomene Institute has grown to service girls and women on an international level with workshops, reports, research, newspaper and magazine articles, and speaking engagements.

Melpomene's research on adolescent girls' physical activity level and self-esteem

A two-part study was conducted over two years concerning girls' levels of self-esteem in relationship to their level of physical activity. The first study was conducted on girls aged 9 to 12 years. The second part of the study involved girls that were older. For the purpose of this evaluation, only the first part of the study is reviewed here. There was a strong positive relationship between girls who had high levels of regular physical activity and girls with high self-esteem (Jaffee & Manzer, 1992). Data was collected both through focus groups and surveys. There was a total of 76 girls who participated in this study. First the girls filled out a three-part questionnaire that contained sections which focused on self-esteem, physical activity, and career choices. Immediately

following the survey the girls participated in an hour and a half discussion in a focus group format. The focus groups ranged in size from 8 to 15 girls. Girls who were most physically active also scored the highest on self-esteem; however, this was not a statistically significant finding (Jaffee & Manzer, 1992). An unexpected finding for the study was that girls who were the most physically active were also reported being the most confident. The participants described physical activity as a way to help them feel good about themselves. (Jaffee & Manzer, 1992). When the girls were asked why they were physically active 76.3% of the girls reported that it was because it was fun, and 26% said that they were active because of the physical and mental health benefits. The study also found that the most influential factor for these girls in becoming and staying physically active was themselves and the encouragement of their parents. One other important finding was the girls in this study cited the obstacles to maintaining physical activity as being seen as incompetent compared to boys, not challenging enough, lack of opportunity, and time conflicts. From this study Melpomene Institute concluded that building confidence at an early age in physical activity may help girls continue to participate in sports and be physically active(Jaffee & Manzer, 1992).

Melpomene Institute's Mentoring Program for adolescent girls aged 9 to 12 years for nutrition, body image, self-esteem, and encouraging physical activity

Melpomene Interns and Girls Project: "Role Models and Mentoring" began in 1999 with a grant from the Star Tribune Foundation. Since its inception changes have been implemented to improve the delivery and service to the participants; however, no formal evaluation was conducted until this time. The program has three main focuses,

including nutrition, body image, and physical activity. The goals and objectives for the program are as follows:

Overall goal: To increase self-esteem through increasing physical activity, educating about age appropriate nutrition, and combating unhealthy body-image.

Objectives:

- to assess the current level of regular physical activity, and to give support for continuing physical activity or to inspire increased physical activity in the participants' lives;
- to educate the participants on proper nutrition for their age level, and to improve diets that may not be healthy; and
- to increase healthy body image through discussions about media images and sharing between participants about themselves and their role models.

There are two segments to the program. Each segment is one and a half hours in length.

The first segment is conducted on body image and physical activity. Each segment has a physical activity component in which all participants are involved. Physical activity is also discussed in each segment. The participants explain their feelings about exercise and being active and how that makes them feel about their body. The girls also talk about female athletes, role models, models in the media, and other females highlighted in the media. Focus is placed on intrinsic qualities of the role models. There are two current activities related to body image in this segment.

The first activity is called "Self-esteem bags". The girls create bags that they feel describes who they are. Then they write positive messages to themselves and other girls

and place them in the bags. The participants are encouraged to take these bags out at home and occasionally review the notes.

The second activity is called “The goddess activity”. In this activity the girls are all told they are goddesses. They make up a goddess name and create an ad about themselves. A Polaroid shot is taken of each girl for their ad. In the picture the girls pose in a position that is suitable for a favorite physical activity they like to participate in. In addition there is a crown placed on the head of the girls in the picture. As part of the ad they must write three things about themselves that make them a unique goddess. One of the items must be about how they are physically gifted, such as in strength or swimming skills. Another item must be a positive attribute about their personality, and the third item must be a positive quality they possess about their mind. At the end of this activity the girls share their ad and are re-crowned in honor of their goddess name.

The second segment contains information about physical activity and proper nutrition. As part of this segment there is a trivia nutrition game in which the girls learn many facts about age appropriate healthy eating habits. They are served a nutritious snack that they participate in making, and they create a personal food/exercise journal in which they are encouraged to write in each day. The first journal entry is made as part of this segment, and includes the physical activity they participated in that day and the snack they ate together.

The workshop, which is composed of these two segments, is presented by interns who work at Melpomene. The interns must be physically active on a regular basis, and possess a good foundation of knowledge about eating healthy and healthy body image.

Interns come from a field of study such as exercise science, psychology, physical education, dietetics, or health education.

The girls that participate in the workshop must be between the ages of nine and twelve years. There are no other requirements of the girls. Many of the groups that participate in the program are involved in girl scouts, although this is not a requirement. Other groups who have participated in the program are YWCA groups, area middle schools, and area companies for the daughters of their employees.

Statement of Problem

The purpose of this study was to evaluate the Mentorship program at the workshops that were conducted Spring semester, 2001, so Melpomene's staff members can be aware of the effects of the program on the participants. The staff members, interns, and board of directors can use the evaluation results to make decisions about whether to continue or expand the program, strengthen the program content, and to gain additional funding. The purpose of the evaluation was to determine what the girls have learned about body image, self-esteem, healthy choices, and physical activity through participation in the workshop.

Hypotheses and Rationale

Based on the literature reviewed here, the hypotheses for Melpomene Interns and Girls' Project: "Role Models and Mentoring" were that (1) there would be an increase in the participants' knowledge of nutrition and (2) knowledge of the positive effects of physical activity; (3) eating habits would become more healthy; (4) the level of regular physical activity would increase or remain the same if at high levels; (5) thoughts on body image would become more healthy; and (6) self-esteem would rise. Research

hypotheses 1, 2, and 5 refer to pre-test to post-test differences. Research hypotheses 3, 4, and 6 refer to pre-test to one-month follow-up differences.

CHAPTER THREE

METHODOLOGY

Participants

The participants in this evaluation were 45 girls between the ages of 9 and 12 years, (mean age 10.4 years). There was an attrition of 13 participants at the time of the third survey. All of the girls took part in the Melpomene workshops this winter through the Girl Scout organization. Although the program is designed for all girls ages 9 to 12 years, and has been conducted in various settings for different audiences, the participants who requested the workshops during this evaluation period were part of Girl Scout troops in the Minneapolis/St. Paul, Minnesota Twin Cities area. There were 6 Girl Scout troops that participated. Ethnicity was not directly assessed. However, most of the girls were Caucasian.

Girl Scout leaders contacted Melpomene to request the workshops for their troops. All girls who participated in the workshops also chose to participate in the evaluation.

Stimulus Materials

The survey used for the evaluation contains statements to be rated on a scale from 0 to 5. An answer of 0 states that the girl does not know the answer or how to comment on the statement. One indicates that the statement is always false, while 2 indicates that the statement is sort of false, 3 indicates that the statement is sometimes false and sometimes true, 4 indicated that the statement was sometimes true, and an answer of 5 indicated that the statement was always true.

The survey consists of 21 statements. Three statements measure the girls' self esteem, five statements measure the girls' perception of body image, three statements measure their knowledge of the effects of physical activity found in other research, five statements measure their current level of physical activity and attitudes about girls in sports, three statements measure their knowledge of nutritional needs, and two statements measure current nutritional habits. This survey is a composite of items taken from other surveys developed at Melpomene Institute and items taken from a survey developed by the American Association of University Women (AAUW) Self-Esteem Index (Jaffee & Manzer, 1992). Also, open-ended questions were developed specifically to assess whether the workshop activities were enjoyable and whether the materials were personally useful. Refer to Appendix A to view to survey.

Procedure

The same 21-item survey was administered immediately prior to the start of the workshop, and immediately after the workshop before departure in a group setting, and one month following the workshop at scheduled meeting times for the respective Girl Scout troops. On the immediate post-test only, there were also four questions about the girls' specific opinions of the workshop. Four questions pertaining to changes in lifestyle were included only with the one- month follow-up study. A release was signed by each Girl Scout troop leader and oral consent was given by the girls who participated. All data for the pre-test and immediate post-test was collected by the researcher, and informed consent forms were distributed by the researcher as well. The Girl Scout troop leaders administered the surveys for the one-month follow-up study, and mailed them directly to the researcher in the envelope provided.

The following statement was read to the girls who participated in the study:

“I would like you to understand that you do not need to fill out this questionnaire if you do not want to. The purpose of these questions is to help Melpomene Institute workers, who conduct this workshop, to understand what your needs are. We would like to teach you information that could help you have an even better life. We would also like these workshops to be fun, and we want to know if you like them. By filling these out you can help us understand you better, so we can provide more workshops in the future that you and other troops will enjoy. You are being asked to fill out one survey at the beginning of the workshop, one at the end, and one in one month at your next meeting. Each time I will distribute and collect them. We do not ask for your name, so no one will know who filled out the questionnaire. If you do not want to fill one out, just pass them to the next girl. Thank you in advance for your help.”

Data Analysis

Data was entered per item on the 21-item statement survey, with numbers ranging from 0 to 5 per participant. The open-ended questions that were part of both post-tests were coded by the categories of self-esteem, body image, nutrition knowledge, nutritional habits, physical activity knowledge and attitudes about physical activity. These categories were specific to the goals of the program. The categories were analyzed to see if there was a significant change from the beginning of the workshop to the completion of the workshop, and at the times of the one month follow-up. A series of repeated measures analyses of variance (ANOVA) tests were used to analyze the overall difference between the three test times, one for each category. If test time within a category was statistically significant, a Paired Samples t-test was then performed. The

Bonferroni test was applied to the specific comparison tests due to the high frequency of comparisons made. Therefore, the probability of error was .017. Descriptive statistics were used to analyze the means for all categories on the open-ended questions.

CHAPTER FOUR

RESULTS

Repeated measures results

As expected, there was a main effect for time of testing in the nutrition knowledge category, $F(1,28) = 16.829$, $p = .001$. This finding supports the hypothesis that knowledge of proper nutrition for girls age 9 to 12 years would increase as a result of workshop participation. Knowledge of proper nutrition for their age group had increased from pretest to post-test, $t(40) = -5.007$, $p = .001$, and scores on the follow-up were still significantly higher than the scores on the pretest, $t(28) = -2.671$, $p = .012$. Although the mean score dropped from post-test to the follow-up, $t(30) = 2.695$, $p = .011$, a significant amount of knowledge was still retained after a period of one month. The mean nutrition knowledge score for the pretest was 11.6 (SD = 3.7), for the posttest, 14.2 (SD = 2.2), and for the follow-up, 13.0 (SD 2.9).

Contrary to expectations, the overall change in mean scores for the physical activity knowledge category, the nutritional habits category, attitudes and level of physical activity category, and the self-esteem category were not significant. Although not significant, the mean scores for the level of and attitude about physical activity category, and for the self-esteem category were in the expected direction.

The Body Image, Part A category did support the hypothesis. Appropriate healthy body image for girls aged 9 to 12 years increased as a result of the workshop, $F(1,29) = 4.339$, $p = .046$. The specific comparison test showed only a marginally significant difference between the pretest and the post-test, $t(42) = -2.289$, $p = .027$. The girls' ideas about body image were positively impacted by participation in the

workshop, but after one month their ideas of body image regressed toward what they were at the start of the workshop. The mean Body Image, Part A score for the pretest was 11.06 (SD = 3.4), for the post-test, 12.2 (SD = 2.5), and for the follow-up, 11.6 (SD = 2.5). See Appendix B for all the means and standard deviations for the six categories.

Responses to open-ended questions

As expected, the participants reported that they would become more physically active after the workshop or remain at a high level of regular physical activity. Eighty six percent of participants thought they would become more physically active as a result of the workshop. One month later, 31.1% had actually increased their physical activity level and 13% sustained an already active lifestyle. Only 13% said it did not affect their physical activity level.

Also as expected, the majority of participants reported one month after the workshop that they had increased physical activity from before the workshop, and many that reported that they had not increased physical activity said that it was because they were already active prior to the workshop. See Tables 1, 2a and 2b for the frequency distributions for responses.

(Place Tables 1, 2a, and 2b about here.)

Also as expected, specific nutrition information for girls ages 9 to 12 years was learned by the participants, and the majority of participants reported eating more healthy in the following month than before the workshop. See Table 3 and Figures 1 and 2 for the frequency distributions of responses.

(Place Table 3 and Figures 1 and 2 about here.)

The overall satisfaction with the workshop was high; however, one item that was not especially useful to participants was the personal journal. See Tables 4, 5, and 6 for the frequency distributions of responses.

(Place Tables 4, 5, and 6 about here.)

CHAPTER FIVE

DISCUSSION

Because girls' peak growth rate is at age 11.5 years (Tamborlane, 1997), it is important for girls to learn the proper nutrients through foods that they need in order to support this growth. The workshop was extremely effective in teaching girls nutritional information which is appropriate for their age, and helping them retain that information. Both calcium (NICHD, 2000), and iron (Tamborlane, 1997) are important for girls in adolescence. With the nutrition game participants not only learned that these foods are essential, but also learned what foods are good sources of these needed nutrients.

With the growth spurts of adolescence comes an added focus on the human body, its physical changes, and therefore physical appearance (Gowen, 1998). The media bombards young girls with images of what looking pretty, cool, or confident should look like. These images are part of scenes that grab the attention of the viewers. Whether it is selling a TV show, make-up, or clothing, the appeal is to what girls want in their lives. If girls do not look like the images, they may not think they can be part of that scene. It is important for these same girls to be exposed to and reminded of role models who have healthy lifestyles and healthy bodies. Girls who do not have a positive body image reported negative feelings about social interactions (Neumark-Sztainer, 1999). With the workshop adolescent girls are exposed to healthy mentors. The workshop did raise the girls' comfort level with their bodies, creating a healthy body image, but this effect did not last to the one month follow-up. This may be because of other exposures during the one month period. The participants may continue the same pattern of exposure to people or images of people that are portraying an unhealthy body image. More studies are

needed in this area to determine what factors play a part in causing the body image to become more positive or negative, and also what factors cause one or the other to be sustained.

Much attention is focused on weight in society for image reasons and also for health reasons. Physical activity in adolescence can reduce the risk of obesity (Bunker, et al., 1997), and overweight girls are more likely to develop eating disorders (Neumark-Sztainer, 1999). By increasing the level of physical activity as was reported by participants of this workshop, girls can reduce these risks. The girls in the workshop responded enthusiastically to questions regarding sports. The workshop was able to heighten this excitement and foster more active lifestyles.

Recording into their personal journals the activities in which the girls participated after the workshop and the foods that they ate was not a favorite for the participants. Most girls reported that they did not use their journals after the workshop, and of those who did, they only used them for a few days.

The knowledge of physical activity effects was divided into two components; one that should increase in value and one that should decrease. The item of the category that should decrease, "Exercise makes me tired for the rest of the day", is written as a false statement; therefore, it should be scored as "always false". This particular item did not show a significant decrease; however, it is believed by the researcher to be a poorly constructed item. Regular physical activity provides increased energy overall, because the rate of breathing increases and the amount of air entering the lungs is higher, the heart rate rises, the volume of blood pumped out of the heart elevates, and the oxygen consumed by the working muscles climbs above resting levels (Nieman, 1998). If a

person makes this exercise a pattern in their life, the body function starts to change both during exercise and during rest periods. The net result of the heart pumping greater volumes of blood and the lungs having the capacity to bring in more air is that the muscles also receive more oxygen and this allows these muscles to burn more fuel and produce more energy. Another way exercise may create energy is by increasing the release of serotonin (Slater, 2000). This “happy chemical”, as it is sometimes called, can make a person feel a higher sense of energy or feel more alive, euphoric, or perhaps jumpy. This item could be confusing to participants, as many times people are tired after exercise, and the participants may not think in long-term effects, or even realize them. Also, this information about the effects of physical activity may not have been emphasized enough in the workshop, as it was just part of the discussion time with the mentors. It was not incorporated into one of the activities. The other part of the component on knowledge of physical activity effects, which was incorporated into an activity, was significantly enhanced, so it was concluded that some knowledge was gained in this area.

In terms of nutritional habits, the participants did not score higher on this category at the one-month follow-up as expected. Although the participants reported eating more healthy, they did not significantly increase in areas that were measured on the 21-item survey. There may be a discrepancy as to what healthy means, or just not a change in specific areas identified in the survey.

Part of the overall goal was to increase self-esteem. Although this category did not increase significantly, the mean score for this category increased at each test time. The workshop may have aided in slightly raising self-esteem, but more research is

needed. The participants may need more exposure to positive ideas and feedback over a longer period of time, or it may require a longer time period for the significant effects of increased self-esteem to be measured as a result of their increased physical activity. Of all the mental and emotional benefits of exercise, self-concept is identified as having the greatest potential to be improved (Leith, 1998). This is great news because of its possible link to other mental difficulties. Because exercise frequently improves body image, it also usually improves total self-image. According to Leith (1998), the author of “Exercising Your Way to Better Mental Health”, self-concept is improved through exercise because self-efficacy is. Self-efficacy is how a person feels about how well they can perform a certain task. After confronting a difficult physical and psychological task, such as an exercise program, and continuing it with success, the person feels they may be able to handle other difficult things they face. The level of self-efficacy improves, and with that increase comes a higher self-concept. The results of higher self-concept are almost always significant in research after about 12 weeks of regular exercise (Leith, 1998); therefore, it may be necessary to test participants of the workshops after a twelve week period to see if the self-esteem component continues to increase.

Recommendations for further research

- Item 20 should be removed from the survey or revised to more accurately reflect the workshop information as it can be confusing to participants.
- The game which taught participants nutrition knowledge should be expanded to include knowledge of the positive effects of regular physical activity, as the nutrition information was more easily retained, and this could raise the retention of the knowledge of physical activity category.

- Open-ended questions should be changed to multiple choice questions with some of the answers obtained from this study provided. The multiple choice format could increase the number of participants responding to these questions, and also remind the participants of possible answers so that they do not have the tendency to be vague in their content.
- An alternate activity should be considered in place of the journals, as the majority of the girls did not use the journals after the workshop, and of those that did, most only used them one or two times.
- Self-esteem should be evaluated over a longer period of time to see if it continues to rise, especially if future workshops are developed to continue the contact of Melpomene mentors and younger girls.
- In future studies a comparison group should be included. Girl Scout troops waiting to be included in the program would make an excellent comparison group for the study.
- To be more representative of the population, an evaluation should be expanded to include groups served by Melpomene outside of the Girl Scout troops.
- More long-term studies should be conducted to determine long-term effects of the program. In this study there was considerable attrition; therefore, additional long-term data is needed. Also extension of the follow-up study to determine long-term effects of more than a month could also be beneficial.
- Similar mentor programs should be developed for older and younger populations of girls to assess the effects of continued exposure to additional workshops.

Conclusion

The researcher recommends continuation and expansion of the program to reach more participants, as the evaluation yielded some significant results and was enthusiastically received by participants. Additional longitudinal evaluations of this workshop will more clearly assess the effects of the mentors' influence on participating adolescent girls.

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Appendix A: Mentor Project Survey

Please circle the number that best answers the following questions

	<u>always true</u>	<u>sort of true</u>	<u>sometimes true/ sometimes false</u>	<u>sort of false</u>	<u>always false</u>	<u>I don't know</u>
1. I like to play outside.	5	4	3	2	1	0
2. I feel proud of the school work I do.	5	4	3	2	1	0
3. I like to exercise.	5	4	3	2	1	0
4. I like to play sports.	5	4	3	2	1	0
5. I eat vegetables and fruits every day.	5	4	3	2	1	0
6. Exercise gives me energy.	5	4	3	2	1	0
7. I exercise at least two times a week.	5	4	3	2	1	0
8. I am happy just the way I am.	5	4	3	2	1	0
9. I eat breakfast every day.	5	4	3	2	1	0
10. Exercise can help me feel better and stay in a good mood.	5	4	3	2	1	0
11. Calcium is very important at my age.	5	4	3	2	1	0
12. I like the way my body looks.	5	4	3	2	1	0
13. I like the way a female athlete looks.	5	4	3	2	1	0
14. I usually think I need to gain or lose weight.	5	4	3	2	1	0
15. The best way to stay healthy is to eat a variety of foods every day.	5	4	3	2	1	0
16. I like most things about myself.	5	4	3	2	1	0
17. I think models look healthy.	5	4	3	2	1	0
18. Iron found in meat is very healthy for girls my age.	5	4	3	2	1	0
19. I think playing sports is cool for girls.	5	4	3	2	1	0
20. Exercise makes me tired for the rest of the day.	5	4	3	2	1	0
21. I think it is normal for girls my age to gain weight over the next few years.	5	4	3	2	1	0

Appendix A cont.

1. What did you like about the workshop?

2. What things did you not like about the workshop?

3. What did you learn that will help you eat more healthy?

4. Do you think that you will start to exercise more or try to be more active after this workshop?

5. What is your age?

Appendix A cont.

1. Have you eaten more healthy since the workshop, if so, what changes have you made?

2. Have you used your food/exercise journal, if so, how much?

- 3.** Have you been more active than you were before the workshop, if so, what things have you done to be more active?

Appendix B

Means and Standard Deviations for Items 1 – 21 of Mentor Project Survey

		<u>N</u>	<u>Mean</u>	<u>Std. Deviation</u>
Nutrition knowledge	NUTK1	42	11.64	3.66
Category	NUTK2	44	14.23	2.17
	NUTK3	31	13.00	2.94
Physical activity	PAKIN1	44	8.11	2.94
knowledge category	PAKIN2	44	8.83	1.97
part a	PAKIN3	31	8.77	1.75
Physical activity	PAKDE	45	1.93	1.37
Knowledge category	PAKDE	45	2.27	1.48
part b	PAKDE	32	2.28	1.53
Nutritional habits	NUTH1	42	8.33	1.43
Category	NUTH2	43	8.63	1.36
	NUTH3	32	8.31	1.75
Physical activity	PAL1	44	21.90	2.65
Attitude category	PAL2	45	22.78	2.65
	PAL3	30	22.83	2.85
Body image category	BODYIN1	44	11.07	3.44
Part a	BODYIN2	44	12.23	2.50
	BODYIN3	31	11.61	2.51
Body image category	BODYDE1	43	5.63	2.58
Part b	BODYDE2	43	5.35	2.70

	BODYDE3	31	4.03	2.40
Self-esteem category	SELF1	43	13.09	1.86
	SELF2	44	13.68	1.62
	SELF3	32	13.88	1.39

Table 1

Frequency Distribution of Responses to the Question:“Do you think you will be more physically active now?”

	Frequency	Percent
Valid I don't know	4	8.9
Yes	36	80.0
No	4	8.9
Total	44	97.8
Missing	1	2.2
Total	45	100.0

Table 2a

Frequency Distribution of Responses to the Question:

“Have you been more active in the last month?”

	Frequency	Percent
Valid I don't know	2	4.4
Yes	14	31.1
No	12	26.7
Somewhat	2	4.4
Total	30	66.7
Missing	15	33.3
Total	45	100.0

Table 2b

Frequency Distribution of Responses to the Question:

“If yes, how; if no, why?”

		Frequency	Percent
Valid	Because I was already active	5	11.1
	I got more involved in active things	5	11.1
	I exercise more	7	15.6
	Total	17	37.8
Missing		28	62.2
	Total	45	100.0

Table 3

Frequency Distribution of Responses to the Question:

“Have you eaten more healthy in the last month?”

		Frequency	Percent
Valid	I don't know	2	4.4
	Yes	14	31.1
	No	9	20.0
	Somewhat	5	11.1
	Total	30	66.7
Missing		15	33.3
	Total	45	100.0

Table 4

Frequency Distribution of Responses to the Question:

“What did you like about the workshop?”

		Frequency	Percent
Valid	Tangle activity	1	2.3
	Personal journals	3	6.7
	Mentors	1	2.3
	Goddess activity	3	6.7
	Dance	1	2.3
	Everything	22	48.9
	Nutrition game	1	2.3
	Healthy snack	2	4.4
	Learning	1	2.3
	Total	35	77.8
Missing		10	22.2
	Total	45	100.0

Table 5

Frequency Distribution of Responses to the Question:

“What did you not like about the workshop?”

	Frequency	Percent
Valid I don't know	1	2.3
Self-esteem bags	2	4.4
Goddess activity	1	2.3
Dance	1	2.3
Nutrition game	1	2.3
Healthy snack	1	2.3
Nothing	23	51.1
Sitting	1	2.3
Boring	2	4.4
Total	33	73.3
Missing	12	26.7
Total	45	100.0

Table 6

Frequency Distribution of Responses to the Question:

“Have you used your personal journals in the last month?”

	Frequency	Percent
Valid Yes	11	24.4
No	13	28.9
Somewhat	6	13.3
Total	30	66.7
Missing	15	33.3
Total	45	100.0

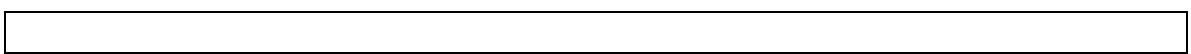




Figure 1. Frequency Distribution of Responses to the Question:

“Have you eaten more healthy in the last month?”

Chart 2



Figure 2. Frequency Distribution of Responses to the Question:

“What did you learn to help you eat more healthy?”