ARE NUTRITIONAL BELIEFS CONSISTENT WITH THE DIETARY PRACTICES OF FEMALE ENDURANCE WALKERS?

by

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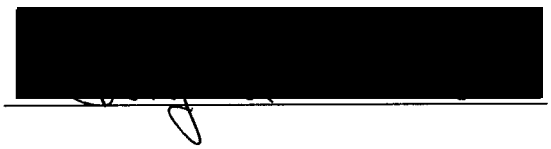

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Abstract

Overweight and obesity are of great concern to those interested in women's health. According to the National Health and Nutrition Examination Survey of 1999-2000 the prevalence of overweight and obesity among American women over the age of 20 is 62% [1, 2]. Overweight women are at increased risk of a multitude of health related problems and chronic diseases [3]. Theoretically, if women eat properly and exercise regularly, maintaining a healthy weight should not be an issue [4, 5]. However, for many women this is not the case. It has been observed by program participants of Women Walk the Marathon® (WWM®), that many highly motivated female endurance walkers do not lose weight despite following a rigorous endurance walking program [6]. It was hypothesized that the nutritional beliefs would not be consistent with the eating habits of female endurance walkers. Endurance walking for this program is defined as walking 25-52 miles per week [6].

METHODS: Data collected from these women who exercise frequently included eating habits utilizing the Diet Habit Survey (n=40) and focus group sessions targeting nutrition, exercise, and weight loss beliefs (n=25). Descriptive statistics were used to describe the eating habits of the women. Content (qualitative) data analysis was utilized to code focus group transcript information and reveal themes. From these themes nutrition and health beliefs of the group were established. Focus group and eating habit information were then compared.

RESULTS: Fourty participants returned completed Diet Habit surveys out of 157 surveys distributed, resulting in a 25% response rate. The women were consuming a diet consisting of 28% fat; less than 200 mg/day/2000 kcals cholesterol; 9% of calories from saturated fat; 57% of calories from carbohydrates; and 15% of calories from protein. Eight nutrition and health beliefs held by the female endurance walkers were: exercise is important for physical and mental health; exercise is necessary for weight maintenance, but exercise alone will not necessarily result in weight loss; structured weight loss programs involving counseling, group and individual support, and education on caloric needs/portion control are the most successful techniques for weight loss; popular/fad diets and VLCDs are unsuccessful weight loss techniques; controlling portion sizes and monitoring the amount of food eaten during a meal are successful strategies for weight loss; lack of time is a major barrier to regular exercise; many people are unaware of how many calories they consume and how many calories they burn during exercise; and planning meals ahead of time makes it easier to control intake.

CONCLUSIONS: The nutrition beliefs of female endurance walkers in the Portland area were consistent with their eating habits. They had a healthier diet than the average American, but were consuming too many calories for weight loss to occur. They would benefit from nutrition education focused on energy densities of foods, portion control, and caloric needs of the body for improved weight loss success.

Key Words: nutrition beliefs, diet perceptions, diet habits, female, overweight, endurance walking

Introduction

Overweight and obesity are of great concern to those interested in women's health. According to the National Health and Nutrition Examination Survey of 1999-2000, the prevalence of overweight and obesity among American women over the age of 20 is 62% [1, 2]. The concern of overweight in women springs from increased risk to a multitude of related health problems and chronic diseases due to overweight status. Overweight and obese women are at increased risk for hypertension, heart disease, diabetes, stroke, gallstones, hyperlipidemia, and colon cancer [3]. With so many women at increased risk for serious health problems, investigators are interested in defining the issues that are contributing to overweight and obesity among the female population.

Theoretically, if women eat properly and exercise regularly, maintaining a healthy weight should not be an issue [4, 5]. However, for many women this is not the case. It has been observed by program participants of Women Walk the Marathon® (WWM®), that many highly motivated female endurance walkers who expect to lose weight, do not lose weight despite following a rigorous endurance walking program [6]. Women Walk the Marathon® is a program for people who want to train to walk the Portland (Oregon) Marathon [6]. This training program takes place over nine months and concludes in October with the Portland Marathon. Their definition of endurance walking, based on WWM® coaches training manual, is 25-52 miles walked per week [6]. Experiential evidence indicates that the WWM® walking program alone has not been entirely effective for weight loss [6]. The reason for this is unknown. Studies have shown that exercise intensity is not a determining factor for achieving weight loss [7]. Specifically, calories are burned during less intense exercise, such as walking, just as in more intense

exercise like running. Both forms of exercise can result in weight loss. Therefore, walking as the chosen form of exercise should be conducive to weight loss. Endurance walking undeniably expends energy. However the extent of weight changes based on calories expended depends on nutritional and behavioral practices [8]. This study will explore reasons why many women following a rigorous walking program are not losing weight by examining their nutritional and behavioral practices. This preliminary data will help generate hypotheses for future weight loss interventions.

Many people underestimate their dietary intake and/or hold dietary misperceptions [9, 10]. However, it is unknown whether nutrition beliefs, perceived intake and dietary practices are consistent among female endurance walkers in the Portland area. Studies have shown many consumers overestimate the qualities of their diets. They think their diets are more nutritious than the data reveal [9, 10]. Consumers who hold such misperceptions of their diets are referred to as optimists [9]. Optimists are generally people who have the objective of maintaining a healthful diet, but have incorporated misunderstood or misinterpreted information on nutrition into their daily life [9]. Bringing such misunderstood and misinterpreted information to light may help optimists see the reality of their diet. Understanding where the inconsistencies are between intake and perceived intake, as well as nutritional misinformation and sound nutritional information are essential for creating a healthful diet and maintaining a healthy weight.

Understanding the nutrition beliefs and perceptions will be essential for developing educational programs targeting incorrect nutrition beliefs and practices in populations

such as the female endurance walkers who do not always lose weight during an intense walking program.

Among the target population for this study many had the goal of weight loss as they participated in the endurance walking program. Concerns arise with increased interest in weight loss. This increased interest can improve diet quality, but it can also open up more opportunity for individuals to be presented with nutrition misinformation and overemphasis on food avoidance causing imbalances in the diet [11]. Understanding how women perceive and use nutrition information is important for those interested in effectively creating public health programs and other projects aimed at distributing accurate women's nutrition information.

Chapter 1

Background

Focus Groups

Focus Groups Overview. Focus groups as a means of data collection have both advantages and disadvantages which will be discussed. Content analysis is the method with which the focus group data is analyzed. The moderator style is also important in this method of data collection.

Focus Group Interview Defined. Focus groups allow for recollection of actual lived participant experiences through discussion. The data generated consist of stories giving snap shots into the lives, health status, and the environments in which these participants live [12]. A focus group interview can be defined as "a technique involving the use of the in-depth group interviews in which participants are selected because they are a purposive, although not necessarily representative, sampling of a specific population, this group being focused on a given topic" [13]. It can further be described as "using a semi structured group session, moderated by a group leader, held in an informal setting, with the purpose of collecting information on a designated topic" [14].

The focus group interview capitalizes on the dynamic group interaction that does not take place during one-on-one interviews [15]. Most focus group interviews are conducted with 8-12 participants, which is generally an accepted number range for such groups [16-

18]. However, smaller groups of 4-6 participants have been used [19]. The groups are led by a moderator and sometimes a co-moderator will also attend [15].

Uses of Focus Groups. The focus group method is an appropriate means for exploratory qualitative research that has recently been growing in popularity in health research [15, 17, 20, 21]. The strategy of the focus group has brought light to the opinions and attitudes of many group participants since 1926 [21]. Focus groups are flexible in that they can be conducted using different moderator styles and derive different types of data [20]. The flexibility of the focus group is fitting to qualitative data collection, as the nature of qualitative research is dynamic. Focus groups are known to take the researcher in many directions [15].

Data collection for topics targeted by the focus group method can range from marketing research and community development to health research and social science [12, 15, 20, 21]. Focus groups have been used to collect aggregate level data and derive preliminary data for development of questionnaires, intervention programs, and hypothesis generation [12, 15, 20]. The use of focus groups as the primary method for qualitative data collection has become more common as acceptance of the qualitative method has increased over the years [20].

Advantages of Focus Groups. The focus group method is an efficient way to gather data in a relatively short amount of time. Since focus group interviews gather the views

of a group versus those of one person in a one-on-one interview setting, the method is economical [15].

When compared to more static forms of gathering data (i.e. surveys), focus groups foster a more spontaneous and active contribution of information from participants [15]. In groups where participants are similar the environment is such that discussion is relatively safe, promoting open discussion [15, 20, 21]. Participants often feel comfortable in the group setting because they do not feel personally obligated to respond to each question [15].

Disadvantages of Focus Groups. Data derived from focus group interviews cannot be generalized to larger populations because groups are usually not formed randomly, thus are not representative of larger populations [17]. Another problem in generalizing the data is that many participants that volunteer to take part in a focus group are typically more self-assured and communicative people [17]. Less forthcoming individuals may be more likely to participate if encouraged [17].

Though also thought to be an advantage by some [15, 20, 21], the homogeneity of the group can also be considered a disadvantage for group dynamics by increasing the likelihood of polarization [15]. Polarization occurs when there is agreement among the group members on a particular topic or viewpoint leading to an exaggerated consensus, repressing opposing viewpoints [15, 21].

A disadvantage of focus group data analysis is the lengthy transcription process that follows each interview. Discussions can span from 1-2 hours and be littered with cross talk and interruptions which the transcriber will need to sift through carefully in order to transcribe accurately.

Skills and Attributes of the Moderator. The skills, personality, and attributes of the moderator or facilitator have a significant effect on the type of data collected and the interactions that take place [15]. The style of the moderator can also vary so long as the moderator (researcher) is "actively encouraging of, and attentive to, the group interaction" [20]. The moderator must be very conscious and thoughtful of his or her behavior and interaction with the group. Verbal and non-verbal cues and balance between active and passive roles of the moderator within the group are very powerful in terms of how they can affect the dynamics of the group and the data generated [15]. Difficulty can arise for the moderator when designing an environment where interest and discussion are generated around a topic of knowledge or interest to the moderator without leading the group in favor of expected outcomes. The moderator must keep dialogue ongoing between the group members and not the members and the moderator [15]. It has been suggested that 5-10% of the final focus group transcription consists of moderator involvement [22]. This 5-10% includes questions guiding the discussion and probe questions to focus the topic or derive further information on a topic.

Data Saturation. Data saturation usually marks the end of focus group interview data collection. Data saturation has occurred when a clear pattern emerges from the data and there is no new information being presented and discussed during succeeding group

interviews [17]. Some advocate that, for research purposes, 3-4 focus group sessions should be sufficient [17].

Recording Focus Group Data. Recording focus group data is a very important part of the data collection process. In order to gather precisely what is said during the focus group interview, tape recording is commonly recommended [15]. Some recommend that the co-researcher take notes on the content of the focus group to ease the transcription process and enable the moderator to give all attention to the group rather than of focusing on taking notes [15]. Taking such notes can make possible the record of non-verbal interface that is not captured on the audiotape [17]. Also, notes can keep clear which quotes came from which participant; relying solely on the audiotape can leave room for error in differentiating between voices of different participants [15].

Focus Group Data Analysis. General problems associated with qualitative data analysis also relate to focus group data analysis, but focus groups also carry unique difficulties in analysis [15]. It is important when analyzing focus group interview data that the process be "systematic, sequential, verifiable, and continuous", in order to increase the consistency of the transcribed data [17]. Set protocol for the analysis of the data should be predetermined and strictly followed. A set procedure is established which enables other researchers to repeat and verify the findings of the study and provide a clear order of operations for the data analysis [16].

Eating Habits

Eating Habit Assessment. There are many eating habit questionnaires that have been developed for research. Although these instruments are quite different and target different dietary aspects, certain commonalities among them are important for accurate diet assessment. Reliability, validity, and practicality are important attributes of survey instruments.

Reliability. One can consider an instrument or method reliable (or reproducible) if results are consistent with repeated use under the same conditions [23-25]. In terms of questionnaires or surveys, reliability is achieved when they generate the same results time and time again [24]. In order to determine whether or not a survey tool is reliable it is necessary to achieve test-retest consistency in situations under which the tool is to be used [23, 24]. Reproducible outcomes add confidence and strength to the data gathered [25].

Validity. Validity refers to the extent to which the assessment tool actually measures what was intended to be measured [24, 26]. Many surveys or questionnaires developed for research purposes incorporate validation studies commonly utilizing food frequency questionnaires (FFQ) and/or multiple day food records as standard measures [27]. These forms of dietary assessment require a trained interviewer or are quite lengthy, and therefore are undesirable in many research projects and primary care settings where resources are limited.

Practicality. Practical survey instruments have a low response burden for the research subject. Instruments requiring only the paper questionnaire, a writing utensil, simple math, and little time are the most practical [27]. Due to the usefulness of such practical tools, many examples exist in the literature [24, 25, 27, 28].

Potential Eating Habit Questionnaires

Only a handful of questionnaires have been developed that consider the diet in its entirety, including eating patterns and habits versus single nutrients or portion sizes only. These types of questionnaires were potential instruments for use in this study. These various questionnaires are considered in the brief summaries that follow.

Eating Pattern Assessment Tool. The Eating Pattern Assessment Tool (EPAT) is a self administered dietary assessment tool developed for use by patients in clinical settings [24]. The EPAT was designed to measure food intake and habits with focus on dietary cholesterol and fat [24]. An important feature of the EPAT is the ability to show dietary changes over time in a simple numerical fashion [24]. This main feature of the survey is meant for use by the self-administering patient, so that personal progress and self-monitoring of diet over weeks or months can be achieved [24]. The EPAT is currently only recommended for white, Midwestern, employed populations; but is being adapted for more diverse populations [24]. This tool is both valid and reliable in that specific population [24].

MEDFICTS. The Meats, Eggs, Dairy, Fried foods, In baked goods, Convenience foods, Table fat, Snacks questionnaire (MEDFICTS) is another simple, self-reported dietary assessment tool [29]. The aim of this questionnaire is to monitor adherence by patients to American Heart Association adopted guidelines of the National Cholesterol Education Program Step 1 and Step 2 diets which restrict dietary fat and cholesterol intake [29]. The MEDFICTS instrument also assesses diet quality and portion sizes with a quantifiable scoring system [29].

MRFIT. The Multiple Risk Factor Intervention Trial (MRFIT) utilized a diet assessment tool to score diets of participants and provides a means for teaching and assessment in the trial [30, 31]. This diet assessment device was used with middle age men (age 35-57) who were considered to be at risk for coronary heart disease. The tool was aimed at monitoring dietary cholesterol and fat intake for counselor use and as a self-evaluation tool by the participant [30]. A simple food scoring system was developed to accomplish simple evaluation by the counselor and the participant; it also enables the participant to recognize dietary goal accomplishment, which reinforces positive dietary changes [30]. Such methods are useful when nutrition education on hypercholesterolemia is necessary in public health interventions or programs [30].

Short Dietary Questionnaire. A short dietary questionnaire was developed, validated and used in the Israel Heart Study to assess the study subjects' usual intake of certain nutrients [32]. Nutrient levels were assessed by looking at the frequency and portion sizes of particular foods consumed [32]. This short survey was validated for use in male,

municipal employee and civil servant populations in Israel and is not considered useful in other populations [32].

The Diet Habit Survey (DHS). The Diet Habit Survey (DHS), is a 32 item eating behavior questionnaire designed to assess a broad range of eating habits in the month prior to administration [23]. The DHS describes eating habits by assigning an overall score to the diet. Summed scores for individual questions allow one to classify diets into categories, with each category being associated with a specific nutrient composition.

The survey was validated by correlating changes in plasma cholesterol levels with changes in survey scores [23]. The survey was found to be reproducible at r=0.60, 0.72, 0.80, and 0.87 for low-fat choices in restaurants, salt score, carbohydrate score, and cholesterol-Saturated fat scores respectively [23]. Three of the four scores are considerably above the minimally accepted guideline of r=0.60. The reliability coefficients ranged form 0.60-0.87 (Appendix 1) [23].

Exercise

Barriers to Exercise. According to a report from the Surgeon General in 1996, 80% of women in the U.S. do not participate in regular physical activity for thirty minutes or more, five times a week [33]. It has also been reported that nearly half of those who start an exercise plan quit between three to six months after initiation [33]. It is of interest that so many women do not exercise regularly or fail to maintain an exercise regime.

Many factors contribute to an individual's decision to participate in exercise. These factors include: physical and social environment, cognition and self confidence, current health status, discipline or motivation, exercise experience or skill, finances, and time [34, 35]. In a survey of women living in Philadelphia, 393 respondents provided information on incentives and barriers to physical activity [33]. Women participating in physical activity two times per week or less reported more barriers to exercise, less motivation, less self-discipline, less interest in exercise, and were less confident in their ability to exercise than those who exercise at least three times per week [33, 35]. Among women of all activity levels time constraints were a barrier to exercise [33, 35]. Among older adult groups, perceived barriers include low energy and lack of proximity to exercise facilities. Younger groups felt that finding the time to exercise was a barrier [34].

Misperceptions of Exercise. Of the women surveyed by Jaffee et al, more weight loss was expected by those who exercised only two times per week or less than those who exercised at least three times per week or more. The women who exercised more expected weight maintenance more than weight loss [33]. This is an interesting finding that implies many women may have unrealistic expectations about weight loss and exercise relationships [33].

Benefits of Exercise. Many benefits of exercise are expected by those who engage in physical activity. These include: improvements in body image, physical appearance, mental health, cardiovascular fitness, weight maintenance or weight loss, better muscle tone, and improved overall health [33]. It has been reported that there is a difference

among age groups in perceived benefits of exercise. Older adults see the opportunity for management of chronic disease, recreation, and weight maintenance, whereas younger populations see exercise as an opportunity to relieve stress, improve their health, and maintain weight [34]. Many of the benefits of exercise serve as incentives to initiate or to maintain physical activity.

Benefits of Walking. The benefits of walking have been studied by many researchers. Out of such research, numerous health benefits of walking have been documented. Improvements have been noted in aerobic fitness (VO2 max), body composition, cognition, and lumbar bone mineral density. Reduced risk has been noted in cardiovascular events, coronary heart disease, and for hip fractures in postmenopausal women [36-41].

In a study exploring the minimum walking dose necessary to initiate improvements in aerobic fitness, research showed little difference between two moderate intensities [36]. Walking at 45-55% of VO2 max (a moderate intensity) and expending 1000-1500 calories per week was concluded by Asikainen et al, to be the approximate minimum dose necessary to improve aerobic fitness and body composition in postmenopausal women [36].

The Nurses' Health Study prospective data, drawn from a pool of 121,700 female registered nurses beginning in 1976, were utilized to investigate the effects of physical activity, including walking, on cognitive function in older women [40]. Cognitive

function analysis included six tests targeting different aspects of cognitive function such as memory, working memory, and attention. Physical activity was measured in metabolic equivalence values (METs) which ranged from a high of 8 for stair climbing (a vigorous activity), to 4.5-2.5 (moderate to light activity) for walking depending on pace [40]. The cognitive function test results were then compared to the physical activity in MET units. Weuve concluded that physical activity such as walking is associated with decreased levels of cognitive decline and improved cognition in older women. It was also found that cardiovascular disease, pulmonary disease, and diabetes were also improved in the more active groups.

The effects of walking and other forms of physical activity are also associated with a reduced risk of cardiovascular events and coronary heart disease (CHD) [38, 39]. In a study published by Lee et al utilizing data from The Women's Health Study (1992-1995), walking at a light to moderate intensity was associated with a decreased risk in CHD. Benefits depended on time spent doing the activity versus intensity of the exercise [38]. In a second study by Manson et al, similar results were reported drawing from data obtained from the Women's Health Initiative Observational Study (1994-1998). Reductions in risk of cardiovascular events were similar to the reduction in risk of coronary disease. As walking or physical activity increased, there was a greater reduction in cardiovascular events [39]. This study concluded that moderately intense physical activity such as walking substantially reduced cardiovascular events in the postmenopausal population [39].

The effects of walking have also been examined for benefits of bone health. In a study involving postmenopausal women with osteopenia or osteoporosis it was concluded that walking at a moderate intensity for at least 1 hour, four days a week for a 12 month period resulted in decreased turnover of bone in the lumbar spine as evidenced by changes in urinary cross-linked N-terminal telopeptides of type 1 collagen (NTX) levels [41]. In a second study on bone health and walking, postmenopausal women who were active with at least 24 MET hours per week were at 55% lower risk for hip fracture than women with less than 3 MET hours per week [37]. Both studies support a moderate level of walking exercise for improvement of bone health.

Endurance walking definition. Currently there is no official definition for endurance walking. For this study endurance walking has been defined as 25-52 miles of walking per week, depending on training level, distributed according to specific training plans throughout the week as detailed in the WWM® coaches training manual [6].

Study Specific Aims

This study was designed to determine what common nutrition beliefs and perceptions were held among female endurance walkers and their dietary practices.

1. The first aim of this study was to determine the nutrition beliefs of female endurance walkers.
2. The second aim of this study was to determine eating habits of female endurance walkers.

It was hypothesized that the nutritional beliefs would not be consistent with the eating habits of female endurance walkers. Revealing these consistencies and/or inconsistencies is important for generating hypotheses for future research about food behaviors and/or weight loss. This study may also bring awareness to study participants of their actions and beliefs surrounding nutrition. By revealing their dietary perceptions the participants will be able to recognize factors that may influence their ability to lose weight.

Chapter 2

Methods

Recruitment

Recruitment. The project was approved by Oregon Health & Science University (OHSU) Institutional Review Board (IRB) (Appendix 2). The target study population was female endurance walkers. Study subjects were recruited from a convenience sample of endurance walkers participating in WWM® in the Portland, Oregon area. These women were in training to walk in the Portland Marathon. Communications between program founder/director and training coach facilitated the recruitment process. This individual served as the liaison between the principal investigator (PI) and the program participants (study subjects).

Female participants were recruited from the one-hundred and forty-two women who participated in the training program. The ages of those who took part in the endurance walking program as reported by WWM® director, ranged from 30 to 60 years [6]. There were no weight or age restrictions.

Program participants attended monthly lectures as part of the marathon training. Lecture topics covered various training techniques, safety information, nutrition information, and other topics (Appendix 3). Lectures were offered in two locations for convenience: Oregon Health & Science University's (OHSU) School of Nursing Auditorium and the

Memorial Health Center (hospital) in Vancouver, Washington. The PI attended the August 2005 monthly lecture at both the Portland and Vancouver sites, as well as the January kick-off lecture in 2006 to introduce the study to WWM® program participants and recruit those who were interested. Introductions included educational background of the PI, current academic interests, study requirements, and basic study protocol. Interested participants had the option to register for a focus group at that time. Other focus groups were scheduled through email, distributed by the WWM® director/coach who worked as a facilitator, and communicated messages from the PI to the participants [6]. Twenty five subjects were recruited for four focus groups.

Focus Groups

Uses of focus groups. Focus group interviews were chosen as an effective means of gathering information on nutrition and diet beliefs and attitudes of the target population. These interviews were also chosen because they are a time effective and economical method of gathering qualitative information on beliefs and experiences.

Focus Group Question Design. Focus group questions were developed by identifying specific information that was desired with regard to the dietary practices, beliefs about nutrition, dieting successes and failures, and exercise beliefs for the target population. The questions were designed to promote conversation and generate data on specific nutrition issues including dieting, weight loss, weight loss barriers, obtaining nutritional information, diet perceptions, and beliefs concerning diet and exercise. Probe questions were also developed to help focus the topics further and generate additional, in-depth

data. Once questions were developed, they were tested for content validity by three dietetic interns and dietetic internship faculty at OHSU. Questions that were perceived largely in different ways or were not understood were revised to be clearer and more specific prior to IRB submission. Moderator dialogue was also scripted to ensure homogeneity for reproducibility purposes. Focus group moderator dialogue, questions, and probes were approved with the study protocol. Moderator dialogue, questions, and probe questions are listed in the focus group script in Appendix 4.

Focus Groups Sessions. In this study the focus group interview was designed to obtain information from small groups of participants from the WWM® endurance walking program about their beliefs, opinions and experiences around nutrition, diet, and exercise. Participants in this research were in the same endurance walking program; therefore they would be more likely to feel fairly comfortable talking in small groups due to previous interactions and familiarity with each other. One hour focus group interviews were used in this study to collect data on female endurance walkers' attitudes and beliefs about nutrition and exercise. No co-researcher was present at the interviews to take notes on the non-verbal dynamics of the group. Two group settings were observed by a co-investigator(s) to take notes on moderator style and technique. Focus groups were held in the greater Portland-metropolitan area. Refreshments were served as an incentive to participate. WWM® participants were asked to sign two consent forms for the focus group session (Appendix 5). The media consent form gave the PI permission to audiotape the focus group session. It detailed how the audio tapes would be transcribed into scripts eliminating names to ensure anonymity of the participant contributions, and

the discarding of the audiotapes after data analysis is complete. The Health Insurance Portability and Accountability Act of 1996 (HIPPA) research authorization form for low risk research projects gave permission to the PI for the creation, use, and disclosure of protected health information for IRB approved research (Appendix 5). The low risk version of this form was chosen because protected health information was not accessed or used. Voluntary verbal input was the form of data collected.

The first focus group interview was held on Sunday August 14, 2005 from 2:00-3:00 pm in the Biomedical Information and Communication Center (BICC) at OHSU. Three (n=3) program participants attended and took part in the focus group discussion. Coffee, water, and snacks were provided for participants. The focus group script (Appendix 4) was followed without interruptions and in order as it appears in the appendix.

Focus group number two took place on Thursday September 8, 2005 from 5:30 to 6:30 pm in the OHSU School of Nursing Building. Ten (n=10) women attended and contributed to this focus group session. Refreshments were provided. Scripted questions were followed sequentially and without interruptions.

The third focus group session took place on Saturday September 24, 2005 from approximately 10:00-11:00 am. The group was held in church facilities where the endurance walkers met for their final group walk. Eight (n=8) participants attended this group session. Also in attendance was one co-investigator to observe moderator style.

Refreshments were provided. The focus group script was followed without interruptions and in order.

The fourth and final focus group was held on February 2, 2006 form 5:45-6:45pm in the School of Nursing building at OHSU. Four (n=4) participants attended the fourth focus group. Two co-investigators also attended the group to observe moderator style and monitor consistency. Refreshments were provided. Co-investigator assistance was necessary due to tape recorder malfunction during the introductions and initial group interactions. Co-moderator notes of group content and interactions while no tape recorder was running enabled the PI to fill in the gaps during transcription of the focus group audio data. A replacement tape recorder was obtained and used for this focus group session. All components of the script were followed in order despite the interruption.

The attendance at the focus group sessions is given in Table 1. Twenty five (n=25) subjects participated in the four focus groups. This represents 18% of the larger group of 142 WWM® participants.

Table 1:

Focus Group Participation Summary

Focus Group Session	Participants in Attendance
1	3
2	10
3	8
4	4
Total	25

Eating Habits

Diet Habit Survey. A revised version of the Diet Habit Survey (DHS) that contained 39 questions was used for collecting information on the female participants' general eating habits (Appendix 6) [23]. The DHS was chosen because of its validity and access to the survey creators for technical assistance. The DHS was obtained from the survey creator for use in the study. The survey was used as a quick and reliable means to assess eating habits and diet composition of those participating. Scoring of the individual questions is given in Appendix 7. Information derived from the DHS included eating habits associated with nine food groups (Appendix 8). Using the information provided from the DHS, diets were classified into categories, with each category being associated with a specific nutrient composition and a related score on the DHS. Appendix 9 and 10 show nutrient composition and DHS scores for women respectively. This scoring provided an estimate of the dietary composition of the typical American female.

The questionnaire and related consent form were sent to all WWM participants (n=142) prior to the first focus group session on August 12, 2005. Along with the DHS, a consent form and a letter providing instructions for WWM® participants was included (Appendices 11 and 12). The letter instructed participants to read and sign the included consent form, explained how to take the survey, and stated when they could expect to receive information on the findings of the study. Return envelopes and postage were included for completed DHS and consent form. Forty completed consent forms and DHS were returned. This represents a 25% response rate.

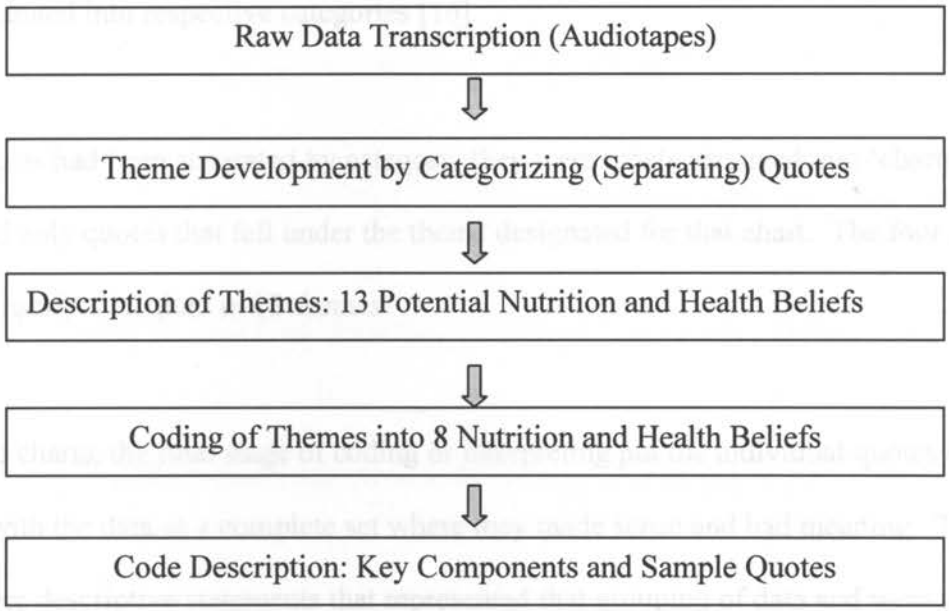
From the additional participants recruited during the "kick-off" introductory lecture for the 2006 WWM® endurance walking group, 15 surveys were taken home by new participants with return envelops. Three incomplete surveys were returned, and therefore, were not used in the data analysis.

Data Analysis

Focus Group Data Analysis (Qualitative). Focus Group content analysis did not require the use of a computer program for transcription and analysis due to the small size of the data set.

Focus group audiotapes were transcribed by hand using Word for Microsoft Windows 98 and a common audio recorder device. Transcripts were then coded according to content analysis described by Krueger et al [16].

Figure 1: Flow of Content Analysis



The focus group sessions followed the format of the focus group script in Appendix 4. Following consenting of the participants, the audiotape recording started with the moderator introduction and continued to the end of discussion. The focus group script was followed sequentially starting with a global question, the interests in women's health, followed by the developed questions. After data had been transcribed, familiarization of the data occurred by reviewing moderator and/or co-moderator notes taken during the session and listening to the audiotapes. During this process themes of the focus group session start to materialize [16].

After all audiotapes had been transcribed, printed transcripts were used for the identification of themes by reviewing the transcripts and identifying key words and/or phrases that represented potential thematic concepts or ideas. From these notes or

highlighted text, categories were identified. Once categories emerged transcript quotes were separated into respective categories [16].

After quotes had been separated by category, they were newly arranged into 'charts' that contained only quotes that fell under the theme designated for that chart. The four focus group transcripts resulted in 13 themes.

Using the charts, the final stage of coding or interpreting put the individual quotes into context with the data as a complete set where they made sense and had meaning. These codes were descriptive statements that represented that grouping of data and were used as a collection to describe the data set as a whole. Codes of the nutrition and health beliefs were developed and are discussed in the results section.

In summary, the audiotape data and notes were reviewed and transcribed; transcripts were read, notes made, text was highlighted to reveal possible themes and categories; quotes were separated by category; separated quotes were assembled into charts of like quotes; and charts were coded for final descriptions of the data.

Eating Habits Data Analysis (Quantitative)

Survey data were analyzed for general dietary habits and eating styles. Descriptive statistics were used for analysis. Averages and standard deviations were calculated to describe the different eating habits of the survey participants. Microsoft Excel was used to organize survey data and complete descriptive data calculations.

Chapter 3

Results

Nutrition and Health Beliefs of Endurance Walkers (Qualitative Data). The focus group analysis identified eight nutrition and health beliefs of female endurance walkers. Nutrition and health beliefs are described and represented in tables below.

1) Exercise is important for physical and mental health. The women attending these focus groups were interested in many issues surrounding women's health, diet, and nutrition. Reoccurring topics of interest included menopause (and related issues like hot flashes and changing hormones), osteoporosis, weight maintenance as they age, cancer (breast and colon), arthritis, good nutrition and vegetarian diets. Specific interests that were mentioned only once included trouble with sleep, heart disease, leptin, and Type II Diabetes.

Of the topics discussed within the focus groups, the relationship between health and exercise was the most universally agreed upon opinion held by the participants. Nearly all of the participants felt that exercise is important for physical and mental health.

Table 2: Nutrition and Health Belief 1 of Female Endurance Walkers (Focus Group Results) **Exercise is important for physical and mental health**		
Code Components: Health:	Key Components:	Sample Quotes
Physical	Flexibility Resting Heart Rate Endurance HDL/LDL Bones	"I don't think you can be healthy without exercise" "I feel better physically and emotionally [when I exercise]"
Mental	Attitude Emotional Wellbeing Mental Health	"I can tell when I haven't been to the gym in a week or two…I have a really bad attitude."
Fit and Overweight:	Health at every size	"I truly believe there is a segment of people who are fit but fat, I think you can be overweight and still be fit"

- **Exercise and Physical Health.** The physical health aspects discussed by the group included blood lipid profiles, bone density, resting heart rate, flexibility, endurance, and body composition. It was recognized that improvements in blood lipids were a substantial benefit to regular exercise. Many women knew that exercise has the ability to lower Low Density Lipoprotein Cholesterol (LDL) and raise High Density Lipoprotein Cholesterol (HDL). Both lower LDL and higher HDL are desirable lipid changes in most American adults. It was also understood that exercise and weight bearing activities could help maintain bone density and

reduce the risk of osteoporosis. Flexibility, resting heart rate, and cardiovascular endurance were reported physical improvements as exercise became part of the lifestyles of the participants.

- **Exercise and Mental Health.** Beyond the more commonly recognized benefits of physical exercise on health, mental health aspects were given just as much attention in most of the discussion groups. Participants were able to identify that lack of exercise had a sizeable impact on their attitude and emotional wellbeing. Many women admitted they had poor attitudes, were irritable, and had a lack of patience when they neglected to exercise over a certain number of days or weeks. Emotional wellbeing and contentment also were considered important benefits of exercise.

- **Fit and Overweight.** Many overweight women considered themselves to be healthy because of the inclusion of regular exercise in their lifestyles. These women felt that regular exercise enabled them to improve and/or maintain their health even though they were not experiencing weight loss as a benefit of the exercise. They felt they were healthy and overweight and experiencing the many physiological and mental health benefits of exercise.

2) Exercise is necessary for weight maintenance, but exercise alone will not necessarily result in weight loss. All focus groups felt exercise is necessary for weight maintenance, but exercise alone will not necessarily result in weight loss.

Table 3: Nutrition and Health Belief 2 of Female Endurance Walkers (Focus Group Results) **Exercise is necessary for weight maintenance, but exercise alone will not necessarily result in weight loss**		
Code Components: Weight Maintenance:	Key Components: Energy Balance	Sample Quotes: "I don't think you can keep weight off without activity." "I think exercise keeps you from gaining weight, but I'm not sure it helps you lose weight." "If you're not exercising you have to eat less."
Exercise with no weight loss:	Liberalize diet do to increased exercise Body Composition	"You think you can afford to eat more." "Pretty much every year that I've been around, for most people weight loss doesn't happen during the program [WWM]." "You might change the internal aspects of your body, but your overall weight may not have changed."

- **Weight Maintenance.** The majority of participants felt that in their experience, weight loss was not necessarily a benefit of regular exercise, though it was considered a necessary component for weight maintenance or energy balance. Many women felt that weight loss required consuming less calories, not just exercising.

- **Exercise without Weight Loss.** Most of the women participating in the focus group discussions were aware that training for and walking the marathon would not likely result in weight loss; in fact, many were seasoned veterans of the program and had not lost weight which was also true for fellow participants. Many seemed perplexed that this was the case, as one would expect to lose weight if one were exercising so rigorously week after week. Several reasons for the lack of weight loss were offered by the group. Women who did not experience weight loss felt that they may have followed a more liberalized diet during these months of increased exercise. They felt they had more room for extra calories because they were burning more calories on a daily basis. It was also felt that the extra calories were necessary to support the endurance walking exercise.

  Although many women did not lose weight during their training and marathon experiences, some did notice slight body composition changes. While no initial body composition measurements have been collected for the group, some felt that their muscles felt tighter, clothes fit looser, and the internal aspects of being more fit were apparent even though there were no weight changes reflected on the scale.

3) Structured weight loss programs involving counseling, group and individual support, and education on caloric needs/portion control are the most successful techniques for weight loss. Women within the focus group interviews had experienced

successful weight loss at different points in their lives. The overwhelming consensus among the group revealed that structured weight loss programs involving counseling, group support, and education on caloric needs and portion control were the most successful techniques for weight loss. These programs were viewed as reasonable, sustainable means for weight loss and were appreciated in light of many unsustainable, trendy diets on the market.

Table 4: Nutrition and Health Belief 3 of Female Endurance Walkers (Focus Group Results)

Structured weight loss programs involving counseling, group and individual support, and education on caloric needs/portion control are the most successful techniques for weight loss

Code Components:	Key Component:	Sample Quotes:
Diet Types: Structured programs	Counselor Guided Group Support Diet/Wt. Loss Information	"[Structured weight loss program] is a successful program for the long term…because it's just eating right, it's not trendy. It's reasonable…portion control."
Behavior Techniques:	Portion Control Removing Temptation Eating Environment	"Using smaller plates has helped me." "I moved away to get away from all of the fast food. There is only one Burger King where we live."
Support:	Counseling Encouragement Socializing	"I think there is a multitude of reasons that people gain the weight back, one that really sticks in my mind is not enough reinforcement or support."

- **Structured Programs.** Many components of structured programs were considered key for weight loss among those who experienced success in such settings. The presence of a skilled group counselor helped women work through their difficulties in adhering to program guidelines, provided support and motivation, and was a reliable source of related diet and weight loss information. Support from peers in the larger group was also a big part of the resulting success that came out of these programs.

- **Behavior Techniques.** In addition to group counseling and support, behavior modification was an essential component of successful weight loss within structured programs. Participants were educated on how to change their eating behaviors through appropriate portion control, removing temptation, and controlling their eating environment. Techniques such as using smaller dishes and measuring out portion sizes helped many women learn what appropriate sized meals were. Other techniques were taught around eating environment and consisted of such behaviors as asking for a take home container before starting the meal so that control over intake is a priority even in social settings. Women who had successfully lost weight felt that planning meals ahead of time and controlling portion sizes during a meal are successful strategies for weight loss.

- **Support.** Focus group participants felt support from a group and/or counselor is an important part of successful weight loss and exercise programs. Essential elements such as encouragement, reinforcement, and socializing enabled many

women to maintain their focus on weight loss. Women who felt they lacked such support, either at home or within their exercise activities, felt it was hard to maintain weight lost or to lose weight.

4) Popular/fad diets and very low calorie diets (VLCDs) are unsuccessful weight loss techniques. Many popular or fad diets were considered unsuccessful by those in the groups who had utilized them as some point in their life as a method to lose weight. Very low calorie diets (VLCDs) were also considered unsuccessful by women in the group. These weight loss techniques were often short lived by the participants because there were unbalanced and unsustainable leading to low energy levels, excessive hunger, and undesirable changes in mood. Overall these diets were viewed as unsustainable even thought they often resulted in some quick weight loss, the results were transient and sometimes ultimately resulted in weight gain beyond the initial starting point.

Table 5: Nutrition and Health Belief 4 of Female Endurance Walkers (Focus Group Results)

Popular/fad diets and VLCDs are unsuccessful weight loss techniques

Code Components:	Key Components:	Sample Quote:
Popular/fad diets	Short term weight loss Unbalanced Not sustainable	"Years ago I tried this fad diet where all you drank was 4 liquid shakes a day…I dropped a lot of weight…it took about 6 months to gain it all back and more."

5) Controlling portion sizes and monitoring the amount of food eaten during a meal are successful strategies for weight loss. Having knowledge about correct portion sizes and paying attention to portions served contributes to an eating environment conducive with weight loss for women with these skills. Many women participating in the focus groups expressed their initial surprise at the actual sizes of portions and how they added up to their daily needs. They felt that such knowledge put food into a new perspective.

Table 6: Nutrition and Health Belief 5 of Female Endurance Walkers (Focus Group Results)

Controlling portion sizes and monitoring the amount of food eaten during a meal are successful strategies for weight loss

Code Components:	Key Components:	Sample Quotes:
Portion/intake control	Knowledge about portions Cognitive eating Environment	"Another thing I thought was helpful was paying attention to portion sizes…a portion is considerably smaller than you would think it should be or is."

6) Lack of time is a major barrier to regular exercise. A seemingly universal barrier to exercise for women attending the focus group sessions was lack of time. Lack of time made regular exercise and healthy eating hard for many women with busy daily schedules. Other barriers expressed by the group included lack of support and the added financial burden of many exercise activities. It was also mentioned that time as a barrier could be overcome if more people decided to make exercise a priority, as with programs

like WWM®. However making time during most days of the week for such a time consuming exercise routine came at the cost of letting something else go.

Table 7: Nutrition and Health Belief 6 of Female Endurance Walkers (Focus Group Results) **Lack of time is a major barrier to regular exercise**		
Code Components: Barriers:	Key Components: Time -Exercise -Healthy Eating Money Support	Sample Quotes: "A lot of people say they don't have time too exercise, but we have made it a priority…but we did have to let something else go." "It's hard to juggle eating healthy and on the go."

7) Many people are unaware of how many calories they consume and how many calories they burn during exercise. Many women in the group are unaware of how many calories they consumed and how many calories they burned during exercise. These women had poor understandings of the caloric densities of foods and/or their personal caloric needs. In addition to the lack of knowledge around caloric densities and needs, many of these women were also unaware of the amount of calories burned during exercise. They tended to overestimate the amount of calories burned and underestimate the amount of calories consumed.

Table 8: Nutrition and Health Belief 7 of Female Endurance Walkers (Focus Group Results) **Many people are unaware of how many calories they consume and how many calories they burn during exercise**		
Code Components:	Key Components:	Sample Quotes:
Caloric densities of foods	Underestimate calories consumed	"Things can be deceiving, you think something doesn't have very many calories when actually it does. Like nuts and cheese, things that are basically good for you but have a lot of calories."
Calories burned with exercise	Overestimate calories burned	"When I started walking I was like…this is great, I can eat anything I want…but then I realized that I needed to start really thinking about what I was eating."

8) Planning meals ahead of time makes it easier to control intake. Meal planning and eating patterns were associated with intake control by the female endurance walkers. It was generally felt among the groups that planning, timing, and regularity of meals were effective for healthier eating and preventing binge eating. Planning meals and snacks ahead of time helped participants keep healthier foods available. Timing and frequency of meals helped prevent excessive hunger and subsequent overeating behaviors.

Table 9: Nutrition and Health Belief 8 of Female Endurance Walkers (Focus Group Results)		
Planning meals ahead of time makes it easier to control intake		
Code Components:	Key Components:	Sample Quotes:
Eating Patterns	Timing Frequency Binging	"I find I eat much better when I plan ahead." "I'm not really hungry in the morning, but sometimes I wonder if you don't eat enough you end up binging later."

- **Meal Planning.** Eating patterns and planning meals and snacks in advance helped many women control their caloric intake. These women felt that healthier choices were convenient because they did the thinking before they were too hungry to care. They also felt that planning, timing, and frequency of meals and snacks helped control cravings and binge eating behaviors.

Eating Habits of Female Endurance Walkers (Quantitative Data). Forty participants returned completed surveys out of 157 surveys distributed, a 25% response rate. The women were consuming a diet consisting of <30% fat; less than 200 mg/day/2000 kcals cholesterol; 9% of calories from saturated fat; 57% of calories from carbohydrates; 15% of calories from protein; 2875 mg/day sodium; and 3000 mg/day potassium (Table 10).

Table 10: Estimated Diet Composition of Female Endurance Walkers (n=40)

Dietary Component	Amount or Percent of Calories per day/ 2000kcals
Fat	30%
Saturated Fat	9%
Cholesterol	<200 mg
Carbohydrates	57%
Protein	15%
Sodium	2875 mg
Potassium	3000 mg

DHS scores for nine diet categories are given in Table 11.

Table 11: The DHS Scores for Nine Diet Categories

DHS Category	DHS Score (mean±sd)
Meat, Fish and Poultry	19.7 ± 4.7
Dairy Products and Eggs	22.3 ± 4.7
Fats and Oils	18.6 ± 3.1
Sweets and Snacks	9.9 ± 2.8
Grains, Beans, Fruits, and Vegetables	55.8 ± 19.9
Beverages	12.6 ± 2.1
Salt	15.6 ± 3.0
Restaurants and Recipes	17.9 ± 4.0
Seafood	6.0 ± 2.1

The mean DHS scores were associated with the following eating habits (Appendix 7):

- **Meat, Fish, & Poultry.** The average participant consumed about 5 ounces of meat, cheese, fish and poultry in a typical day. Participants also chose leaner types of ground meat from super lean, ground sirloin, ground turkey or chicken breast (4%-10% fat); to ground round (15% fat).

- **Dairy & Eggs.** On average, survey respondents were consuming one percent milk, light cheeses, and one to two eggs per week.

- **Fats & Oils.** On average, 4-5 teaspoons of added fats are used per day; the fats used as spreads are used "lightly". Vegetable oil, and tub or stick margarines were most often used in cooking.

- **Sweets & Snacks.** Desserts or baked goods were consumed on average two times per week. Desserts or snacks consumed in the last month by participants consisted mostly of pies, cookies, cupcakes, muffins, scones, frosted doughnuts, and granola bars.

- **Grains, Beans, Fruits & Vegetables.** The average number of pieces of fruit or cups of fruit juices consumed in a day by the average participant was 2.33; and the average number of cups of vegetables eaten in atypical day was 3.38.

- **Beverages.** The average amount of beverages consumed per week was 1-3 drinks of alcohol; 1-2 cans of soda per week; and an average of 1-3 cups of coffee per day.

- **Salt.** Participants reported on average that they occasionally added salt to their food at the table. In cooking potatoes, rice, pasta, vegetables, meat, casseroles, and soups, half the usual amount of regular salt was added or a usual amount of *Lite* salt was used.

- **Restaurants & Recipes.** On average, participants ate breakfast at a restaurant or cafeteria less than once a month. More participants reported eating lunch out more often than breakfast. On average they ate lunch at a restaurant or cafeteria or ate "take-out" 2 days per week. Dinner was eaten out about once a week on average. When cooking at home, on average survey respondents ate foods made using low-fat recipes or cooked low-fat without recipes 3-4 times per week.

- **Seafood.** Almost once a week on average participants ate fish; usually white fish, oyster, lobster, tuna, or crab.

Chapter 4

Discussion

This study examined the relationship between nutrition beliefs and eating habits of female endurance walkers in the Portland area. Many of the nutrition and health beliefs of the study participants highlighted weight loss strategies and perceived benefits of exercise on overall health. Eating habit data revealed female endurance walkers had a healthier diet than the typical U.S. American (Table 12).

Table 12: Participants Diet Composition Compared to the Typical American Diet

Dietary Component	Participants' Intake	Typical American Intake
Fat	28% of calories	33% of calories
Saturated Fat	9% of calories	11% of calories
Cholesterol	<200 mg/2000 calories	<300 mg/2000 calories
Carbohydrate	57% of calories	52% of calories
Protein	15% of calories	15% of calories

The female endurance walkers consumed a diet with 5% fewer calories from fat, 2% fewer calories from saturated fat, 100 mg less cholesterol, and 5% more carbohydrate calories than the average U.S. American.

The Family Heart Study was undertaken in Portland, Oregon from 1978-1984 [23]. This study along with two cookbooks and extensive research on diet and health, may well have impacted the eating habits of the Portland community and resulted in the lower

participant intake (especially of fat, saturated fat, and cholesterol) than the typical American. Likewise, the American Heart Association and National guidelines from the U.S. Department of Agriculture may have influenced the overall intake of participants in this study.

The eating habits associated with the diet compositions for the female endurance walkers compared to the typical American diet are given in Table 13.

Table 13: Participants Eating Habits Compared to Typical American Eating Habits

Category	Participants' Intake	Typical U.S. Intake
Meat, Fish, and Poultry		
Type of Ground Meat	4-15% fat	20-25% fat
Ounces per Day	~5 oz	~8 oz
Dairy Products and Eggs		
Milk	Non-fat or 1%	2%
Eggs Eaten per Week	1-2	1-2
Fats and Oils		
Cooking Fats	Tub/stick (canola)	Tub/stick (non-canola)
Added Fats	4-5 teaspoons/day	7-8 teaspoons/day
Sweets and Snacks		
Desserts Eaten per Week	2	3-4
Grains, Beans, Fruits, and Vegetables		
Pieces of Fruit/Cups of Fruit Juice per Day	2.3	<2
Cups of Vegetables per Day	3.4	<1
Beverages		
Alcohol Drinks per Week	2-3	4-6
Ounces of Soda per Week (not diet soda)	~12 oz	~33-48 oz
Salt		
Salt Use at the Table	Occasionally	Frequently
Restaurants and Recipes		
Lunch Meals Eaten Out per Week	1-2	5
Dinner Meals Eaten Out per Week	1	>3
Seafood		
Fish Eaten	1 per week	1-3 per month

As shown in Table 13, the female endurance walkers followed a trend of lower fat foods, smaller or fewer portions of less desirable foods like desserts, and larger or more portions of desired foods like fruits and vegetables than did the typical American. They also ate out less frequently during the week, used less added salt, and drank less alcohol than the typical American. These results are consistent with the nutrition and health beliefs for this population.

The study participants chose leaner meats (4-15% fat versus 20-25% fat) and consumed less meat on a daily basis than the typical American. Milk choice was also lower in fat, non-fat or 1% compared to 2%. They also chose more heart healthy added fats and used less than the average American. The female endurance walkers consumed more grains, beans, fruits, vegetables, and fish on a weekly basis than did the typical American.

Tables 12 and 13 illustrate the healthier diet and diet habits of the female endurance walkers as compared to the typical American diet. Interest in health and nutrition are reflected in the diets of the female endurance walkers which are lower in fat, saturated fat, and cholesterol, and higher in carbohydrates than the average American. The diets of the study participants are comparable to U.S. Dietary Guidelines and the American Heart Association recommendations for a heart healthy diet.

The study identified 8 nutrition and health beliefs. There is no data to compare beliefs in this study with the nutrition beliefs of the typical U.S. American. What we did find was

that many of the nutrition and health beliefs held by the female endurance walkers were consistent with their eating habits.

The study participants felt that exercise was important for physical and mental health. This belief was supported by their participation in the WWM® walking program. They also believed that exercise is necessary for weight maintenance, but will not necessarily result in weight loss. This was also true for this group.

Many of the female endurance walkers felt that structured weight loss programs are the most successful technique for weight loss. They felt this was the best way to receive the proper tools for successful weight loss (i.e. group and individual support, behavior modification techniques, diet and weight loss information, etc.). This belief was supported by the participants who achieved their weight loss during participation in such programs. Many reported that participation in WWM® also provided similar benefits as structured weight loss programs only in relation to exercise.

Revealing these consistencies is important for targeting where problems are in their efforts to lose weight. It still remains unclear why these women who had healthy diets and engaged in regular endurance exercise did not lose weight?

Efforts toward a healthful diet. As revealed in focus group sessions, female endurance walkers made a conscious effort to eat a healthful diet for overall health and/or weight

loss. Sample quotes are listed below from participants in the focus group sessions depict the efforts of these women toward a healthier diet.

- "I get the munchies when I'm stressed, so I try to keep healthy snacks around"
- "I eat 5 servings of veggies a day."
- "It's hard to find good food choices, but when you make a decision to change it's easier to make those choices."
- "I have never been on a diet…it's all about balance and eating a wide variety of foods, getting exercise, and eating healthy and feeling healthy."

Despite the efforts toward a healthful diet by the female endurance walkers, it is possible that their beliefs about their diets were still somewhat optimistic. As shown above in Table 12, the diets of the female endurance walkers were superior to the average America's, but the differences were not huge. In the future, surveying where the endurance walkers feel their diet falls in comparison to the average American would further clarify their diet perceptions. This additional information combined with the measures of caloric intake of the participants' diets would be valuable information for designing a weight loss program for this particular group.

Association of diet and weight status. As previously discussed, caloric densities of foods and caloric needs cause some confusion in many people. It is possible that this particular group was consuming too many calories to achieve weight loss. This group was burning calories in their walking program; however it is likely that more attention

needs to be paid to their caloric intake if weight loss is a goal. Caloric intake was not measured in this study, but should be included in follow-up studies further exploring weight loss in this population.

Weight maintenance. Research targeting weight loss maintenance indicates that women who have lost weight and kept it off continue to eat less overall [42]. These women consumed about 1,306 kcals per day and 24.3% of calories from fat [42]. The average female American consumes 1,646 kcals per day and 33% calories from fat [43]. The calorie and fat calorie levels conducive with weight maintenance in women are significantly less than what is consumed by the average American female. When comparing percentage of calories from fat, the women in the study who were maintaining their weight loss (24.3% of calories for fat) consumed less than the female endurance walkers (28% of calories from fat).

In another study looking at predictors of long term weight maintenance, caloric restriction was a predictor for weight maintenance, as restricting calories results in less weight gain [44]. The subjects in this study also valued physical activity as a component of increased energy expenditure and weight maintenance [44].

The National Weight Control Registry is a valuable source of information on weight maintenance. According to the registry, those who achieved a 30 pound weight loss for at least one year utilize common behavioral techniques to maintain their weight loss [45]. Diet habits among the women in the registry included an average daily caloric intake of

1,381 calories [45]. Of these calories, 24% are from fat, 56% from carbohydrates, and 19% from protein [45]. These women also expended a weekly average of 2,545 calories during exercise, the equivalent of about one hour of brisk walking per day (a moderate intensity exercise) [45]. This is much greater than the recommended 30 minutes 3 days per week or more of moderate intensity exercise for the typical American [45].

It is likely that the female endurance walkers were consuming a calorie level that would result in weight maintenance, but not in weight loss. It seems that some female endurance walkers have similar practices of caloric restriction through the use of portion control as revealed in the focus group interviews. However, without information on their caloric intake it's hard to know how much they were controlling their intake of calories. The endurance walkers were likely meeting criteria for weight maintenance and not weight loss, according to the research presented by Vogles and Shick [42, 44]. Further caloric restriction is likely needed for weight loss to occur. One way to achieve weight loss is to combine decreased portion sizes and decreased energy density of foods [46]. The combination of both decreased portion sizes and energy densities of foods results in decreased energy intake without increasing hunger [46].

Motivators and Barriers. Overcoming common barriers for healthful eating and exercise as identified by focus group participants is an important task for future research. Several of the motivators and barriers for exercise in the female endurance walkers were similar to those identified in other studies. Common barriers reported by participants that have also been identified in the literature include: social environment (support), finances,

and time [34, 35]. The major motivator for focus group participants to exercise was individual and group support. Capitalizing on the motivations for this particular group (i.e. support) may also be useful in future research for overcoming barriers and developing weight loss programs.

The need for nutrition education. Knowing that these women were more savvy in choosing healthier diets than the average American, the next appropriate step toward improving eating habits should focus on adding to their dietary knowledge. Some of the women who participated in the focus group sessions revealed they were unaware of how many calories they consume and how many calories many foods contain. They would benefit from knowledge on the amounts of calories burned during their exercise activities. For female endurance walkers having weight loss as their goal, more information in both areas could help them to adopt effective eating habits for weight loss.

Strengths. Strengths identified in this study include focus group methodology which was consistent from one focus group to the next. This consistency provided uniformity of data collected from the focus group interviews. Another strength was use of the DHS survey which was reliable, valid, and practical. The data collected using this survey was therefore sound and valid. This study examined nutrition beliefs in this population which provided novel information on nutrition beliefs, an area currently lacking original research. The study population is a Portland based group that is well established, therefore, future studies could potentially access this same group for continued research.

Limitations. Limitations in this study have been identified. Co-researcher(s) were only present during the third and fourth focus group sessions, therefore moderator style was not observed for all discussions. Also, in the first focus group session there were only three participants. This is below the recommended number of four or six depending on the source as was discussed in the focus group background section. Familiarity of participants with each other could also be considered a limitation. This was discussed in some of the literature as a positive aspect within the focus group setting, producing a comfortable environment for discussion; however this can also be a negative aspect in that participants may not feel completely comfortable disclosing certain information amongst peers.

There was a low response rate for both the focus group sessions and the DHS, 18% and 25% respectively. Response rate may have been biased by attendance at the monthly lectures where the PI introduced the study to the participants. It is possible that those who were exposed to the PI's description to the study during at these lectures influenced their decision to participate. Those who attended the monthly lectures on a regular basis may have also been more motivated and therefore more likely to participate in the study. Response rate for the DHS could likely have been improved if time were provided during one or two monthly lectures for participants to fill out and return the survey.

Endurance walkers who attended the monthly lectures on a regular basis would also have had exposure to nutrition information during the lecture focusing on nutrition for

athletics. Exposure to this information may have also biased the results of the DHS and focus groups.

There was no control group for this study. A control group consisting of typical, non-endurance walker women living in Portland would have provided information on how the two groups compare. This data is limited to this specific female population who had time to participate in time consuming endurance exercise and were financially able to participate in the walking program. Portland is also a more informed community in regards healthy lifestyles due to research in the area including the Family Heart Study and other media and research efforts.

Future research directions. Additional studies should employ a case controlled study design matching study participants to female, non-endurance walkers in the Portland area. Additional measurements that would move the research forward include pre and post marathon measurements of anthropometrics, body composition, and caloric intake. Biochemical information of interest may include pre and post marathon measurements of serum lipids (total cholesterol, LDL, and HDL) and hormones such as leptin and ghrelin. Pre and post marathon measurements relating to exercise could include V02 max, resting heart rate, blood pressure, and timed one minute mile. Successful nutrition and weight loss education for benefit of this population could be developed using information revealed in this study combined with results from future studies.

Summary. In summary, the nutrition beliefs of female endurance walkers in the Portland area were consistent with their eating habits. They had a healthier diet than the average American, but were consuming too many calories for weight loss to occur. They could benefit from nutrition education focused on energy densities of foods, portion control, and caloric needs of the body for improved weight loss success.

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Appendix 1

Appendix 1: Test-Retest Reliability Coefficients for The Diet Habit Survey in 19 Family Heart Study Participants

Diet Habit Survey Score	First vs. Second Assessment			
	Mean Difference	*P* value	Correlation Coefficient	*P* value
Cholesterol-Saturated fat score	-0.7	0.560	0.87	0.000
Carbohydrate score	+3.7	0.204	0.80	0.001
Salt score	+0.4	0.092	0.72	0.001
Low-fat choices in restaurants	-0.4	0.811	0.60	0.007

Appendix 2

Appendix 2: Oregon Health & Science University Institutional Review Board Approval

REGON HEALTH & SCIENCE UNIVERSITY
esearch Integrity Office, L106-RI (503) 494-7887

MEMO

Date: August 3, 2005

To: *Elizabath Legg MS FM 10*
Dorothy E. Hagan FP

From: Margaret Allee, RN, MS, JD, Chair, Institutional Review Board, L106-RI
Susan B. Bankowski, MS, JD, Co-Chair, Institutional Review Board, L106-RI
Gary T. Chiodo, DMD, FACD, Director, OHSU Res. Integrity Office, L106-RI
Charlotte Shupert, PhD, Manager, Research Integrity Office, L106-RI

08/03/05

Subject: ***8614, EXP***
Are nutritional beliefs consistent with the dietary practices of female endurance walkers.

Initial Study Review
Protocol/Consent Form Approval

This study is currently approved for 100 subjects .

Your protocol is approved for one year effective 08/02/05.

Your media consent form is approved by the IRB effective 08/03/05.
You may use only copies of the attached approved consent form for the informed consent process. Please write the date of annual protocol approval in the upper right hand corner on the first page of the consent form. If you submit a revised consent form for approval during the coming year, please type the annual protocol approval date on the first page when revising the form.

Your media authorization form is approved by the IRB effective 08/03/05.
You may use only copies of the attached approved authorization form for the informed consent process. If you submit a revised authorization form for approval during the coming year, please type the annual protocol approval date on the first page when revising the form.

Your combined consent/authorization form is approved by the IRB effective 08/03/05.
You may use only copies of the attached approved consent/authorization form for the informed consent process. Please write the date of annual protocol approval in the upper right hand corner on the first page of the consent/authorization form. If you submit a revised consent/authorization form for approval during the coming year, please type the annual protocol approval date on the first page when revising the form.

Other items reviewed and administratively approved by the IRB include: Focus Group Script and The Diet Habit Survey

This study met the criteria for EXPEDITED IRB review based on Categories # 6 and 7 [1]. (6) Where the collection of data from voice recordings made for research purposes and (7) where the research involves questionnaire methodologies.

Subjects must receive a copy of OHSU's Notice of Privacy Practices.

Accounting for disclosures is not needed because all subjects will sign a consent form and HIPAA authorization.

This approval may be revoked if the investigators fail to conduct the research in accordance with the guidelines found in the Roles and Responsibilities document (http://www.ohsu.edu/ra/rso/rgc/randr.pdf). Please note that any

proposed changes in key personnel must be submitted to the IRB via a PRAF and approved prior to initiating the change. If you plan to discontinue your role as PI on this study or leave OHSU, you must arrange either (a) to terminate the study by so notifying the IRB and your department head, or (b) propose to transfer the responsibility of the PI to a new faculty member using a PRAF.

Investigators must provide subjects with a copy of the consent form, keep a copy of the signed consent form with the research records, and place a signed copy in the patient's hospital/clinical medical record (if applicable).

Appendix 3

Appendix 3: WWM® Monthly Lecture Topics

Benefits of Exercise
The How's and Why's of Training
A Practical Guide to Technical Clothing
Injury Prevention and Prescription
Nutrition for a Healthy Life and Endurance Sport
Strategies for Long Term Success
Training in the Heat
"Pace Training"
Exercise and Medication
The Emerging World of Technology for Exercisers
Strategies for Successfully Completing Long Distance Training
Essential Guide to the Portland Marathon
What do I do Tomorrow? Keeping a Zest for Exercise

Appendix 4

Appendix 4:Focus Group Script (Moderator dialogue and focus group questions)

Focus Group Script

Sixty minutes will be planned for the focus group session session. Moderator script is in italics.

Outline

I. Background and Introduction (5 minutes)

Objective: Put participant at ease by explaining the purpose of and procedures for the group and by facilitating introductions to help participants be comfortable with one another.

Thank you all for your participation in today's discussion group on topics related to women's health. There are no right or wrong answers. What is said in the group, stays in the group. The information you provide will be unanimous. Names will not be used beyond the group. This session will be recorded for research purposes. The tapes will be transcribed, and the transcribed data will be used for analysis. I would like each of you to introduce yourself starting to my left. Tell us your name and one topic in women's health that is interesting to you.

II. Diet Perception (10 minutes)
Objective: To determine participants' beliefs about their current diet.
Question: How do you feel about the foods you eat?
Follow-Up Probes: Tell me more about...How about beverages?

III. Healthy Weight and Weight Loss (10 minutes)
Objective: Determine if weight loss is an issue for participants, and how diet fits.
Questions: Has weight loss been an issue for you?
How is diet related to weight loss?
Probes: Tell me more about...

IV. Weight Loss Methods (20-30 minutes)
Objective: Determine what participants feel are successful ways to lose weight: what works and what does not work.
Questions: What weight loss techniques have been successful for yourself or others?
What weight loss techniques have not been successful?

Probes: Tell me more about...., Why did it or didn't it work...

IV. Exercise (10 minutes)
Objective: Determine how important the participants feel exercise is to losing weight and health in general.
Questions: How important do you feel exercise for weight loss?
Do you feel exercise is important for overall health?
Probes: Tell me more about...

V. Wrap-Up and Summary (5 minutes)
Objective: Revisit key issues and thank participants.
Summary: *Looking back on out discussion, is there anything else related to diet and exercise you would like to tell me?*
Thank you all for your participation in this discussion group. I greatly appreciate your contribution to my research project.

Appendix 5

Appendix 5: Focus Group Consent Forms

OHSU Oregon Health & Science University

HIPAA RESEARCH AUTHORIZATION – SHORT FORM

AUTHORIZATION FOR THE CREATION, USE, AND DISCLOSURE OF PROTECTED HEALTH INFORMATION FOR INSTITUTIONAL REVIEW BOARD APPROVED RESEARCH

Title of Study:	Are nutritional beliefs consistent with the dietary practices of female endurance walkers.
Name of Investigator:	Elizabeth Legg, MS Student; Dorothy W. Hagan, PhD, RD
Phone Number:	(503) 494-7596
Sponsor:	Dietetics and Nutrition; Master of Science in Clinical Nutrition
IRB Number:	8614
Protocol Approval Date:	
Consent Form Approval Date:	

This form authorizes Oregon Health & Science University (OHSU) to use and disclose certain protected health information about _____ (Name of research subject) that we will collect and create in this research study.

This authorization is voluntary, and you may refuse to sign this authorization. If you refuse to sign this authorization, your health care and relationship with OHSU will not be affected, however, you will not be able to enter this research study.

1. The specific health information we will collect from you will be limited to your responses to questions in a questionnaire and/or interview with the investigator. The purposes of our use and disclosure of this health information are described in the **Purpose** section of the research consent form.

2. The persons who are authorized to use and/or disclose your health information are all of the investigators who are listed on page one of the Research Consent Form and the OHSU Institutional Review Board.

3. The persons who are authorized to receive this information are the sponsor of this study and federal or other governmental agencies as required for their research oversight and public health reporting in connection with this research study.

4. This authorization will expire and we will no longer keep protected health information that we collect from you in this study in June 2006.

Statement 1: You have the right to revoke this authorization and can withdraw your permission for us to use your information for this research by sending a written request to the Principal Investigator listed on page one of the research consent form. If you do send a letter to the Principal Investigator, the use and disclosure of your protected health information will stop as of the date he/she receives your request. However, the Principal Investigator is allowed to use information collected before the date of the letter or collected in good faith before your letter arrives. Revoking this authorization will not affect your health care or your relationship with OHSU.

Statement 2: The information about you that is used or disclosed in this study may be re-disclosed and no longer protected under federal law. However, federal or state law may restrict re-disclosure of HIV/AIDS information; mental health information; genetic information; and drug/alcohol diagnosis, treatment, or referral information. OHSU tries to protect against re-disclosure without your permission by being very careful in releasing your information. If the researchers publish the results of the research, they will do so in a way that does not identify you unless you allow this in writing.

You will receive a copy of this authorization form after you sign it.

Printed name of Research Subject

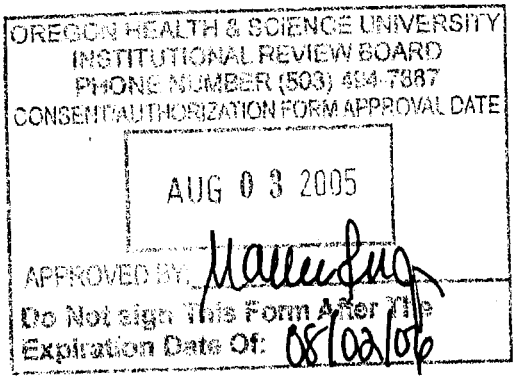
Signature of Subject Date

-OR-

Printed name of Subject's Legally Authorized Representative

Signature of Subject's Legally Authorized Representative Date

Description of Relationship to Subject:



OREGON HEALTH & SCIENCE UNIVERSITY
Media Consent Form

TITLE: Are nutritional beliefs consistent with the dietary practices of female endurance walkers?

PRINCIPAL INVESTIGATOR: Elizabeth Legg, MS Student (503) 494-7596

CO-INVESTIGATOR(S): Dorothy Hagan, PhD,RD, LD (503) 494-7596
Victoria Warren-Mears, PhD, RD (503) 494-7596
Sonja Connor, MS, RD (503) 494-7775

SPONSOR: Dietetics and Nutrition, Masters of Science in Clinical Nutrition, OHSU

PURPOSE: The purpose of this study is to determine the diet habits and diet perceptions of female endurance walkers.

You have already consented to participate in a research study because you signed our initial consent form. During this research project you will be audio taped. The purpose of form is to obtain your permission to use the audiotapes for research publications.

PROCEDURES:

The discussion group will be moderated by the principal investigator. The discussion will be recorded from the beginning to the end. The identities of the participants will not be included in the transcription of the audiotapes. The audiotapes will be destroyed after transcription is complete. Participants will not be able to inspect the recordings before they are transcribed unless a request is made to do so.

RISKS AND DISCOMFORTS:

The primary risk of permitting such recordings is loss of confidentiality. Names will not be included in the transcribed focus group scripts. The materials will be store in a locked or password protected file until June 2006, and upon completion of the study they will be destroyed.

BENEFITS:

You may or may not personally benefit from participating in this study. However, by serving as a subject, you may contribute new information which may benefit *women* in the future.

ALTERNATIVES:

You may choose not to participate in the study at all, or you may choose to participate in the study without permitting the release of your photographs, videotapes or audiotapes.

CONFIDENTIALITY:

Recordings will be transcribed into scripts for analysis and they will be presented to investigators of the study for analysis. Recordings will not be released to anyone else without the participants' written permission.

Research records may be reviewed and/or copied by the Dietetics and Nutrition, Masters of Science in Clinical Nutrition program, the OHSU Institutional Review Board, and the Office for Human Research Protections (OHRP).

COSTS:

Recordings will be transcribed into scripts for analysis and they will be presented to investigators of the study for analysis. Recordings will not be released to anyone else without the participants' written permission. You will not be charged for the use of the audiotapes nor will you be paid for allowing us to use them.

LIABILITY:

The Oregon Health & Science University is subject to the Oregon Tort Claims Act (ORS 30.260 through 30.300). If you suffer any injury and damage from the use of your recorded audit tapes through the fault of the University, its officers or employees, you have the right to bring legal action against the University to recover the damage done to you subject to the limitations and conditions of the Oregon Tort Claims Act. You have not waived your legal rights by signing this form. For clarification on this subject, or if you have further questions, please call the OHSU Research Integrity Office at 503-494-7887.

PARTICIPATION:

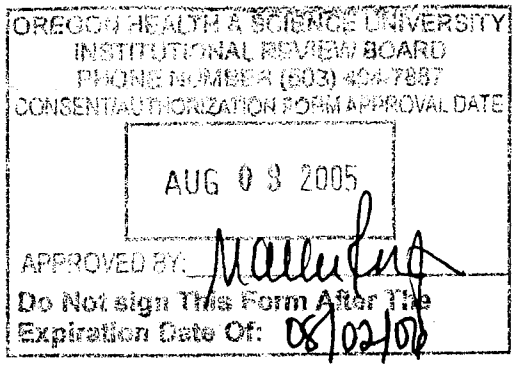
Dorothy Hagan (503) 494-7596) has offered to answer any other questions you may have about this study. If you have any questions regarding your rights as a research subject, you may contact the OHSU Research Integrity Office at (503) 494-7887.

You do not have to join this or any research study. If you do join, and later change your mind, you may quit at any time. If you refuse to join or withdraw early from the study, there will be no penalty or loss of any benefits to which you are otherwise entitled.

We will give you a copy of this consent form.

SIGNATURES:

Your signature below indicates that you have read this entire form and that you agree to permit this use of your audio taped commentary.



Signature of Participant_____
Date_____

Signature of PI_____
Date_____

Appendix 6

Appendix 6: The Diet Habit Survey

MEAT, FISH AND POULTRY

Consider your eating habits during the last month. **For each question, circle all numbers that apply.**

1. **Which type of ground meat do you usually eat?**

office use only

1 Regular hamburger (30% fat)
2 Lean ground beef (25% fat)
3 Extra lean/ground chuck (20% fat)
4 Ground round (15% fat)
5 Super lean (4% - 10% fat), ground sirloin (10% fat), ground turkey breast, ground chicken breast
6 **Eat no ground meat**

Score_____

2. **Which best describes your typical lunch? "Lunch meat" means ham, bologna, salami, pastrami, etc.**

1 Cheeseburger, pizza, typical cheeses, egg dishes (egg salad, quiche, frittata, etc)
2 Sandwich (lunch meat, hamburger, grilled cheese,), meat/chicken entree (plain/fried), regular hot dog
3 **Skip lunch** or sandwich (tuna, fish, peanut butter, chicken or turkey lunch meat/light mayo, etc), turkey hot dog, vegetarian dishes
4 Tuna sandwich (w/mayo: 1 gm fat or less/Tbsp, Veggie burger (*Garden, Boca*), entree (fish [not fried], small bits of chicken or meat), low-fat yogurt,
5 Salad (low-cal dressing), low-fat vegetarian dishes, hot dog (0-2 gm fat), deli meats/fat free sandwich (w/mayo: 1 gm fat or less/Tbsp), bagel (light cream cheese)
6 Fat free vegetarian dishes, salad (fat free dressing), Veggie dog, Garden Vegan (fat free burger), nonfat yogurt, dry cereal (skim milk), bagel (fat free cream cheese)

Score_____

3. **Circle all of the choices that reflect the entree at your main meal.**

1 Cheese (Cheddar, Jack, etc), eggs, organ meats (liver, etc), pizza, vegetarian dishes once a week or more
2 Beef, lamb, pork or ham once a week or more
3 Very lean red meat (top round or flank steak), rabbit, veal, venison or elk once a week or more
4 Chicken, turkey, crab, lobster or shrimp twice a week or more
5 Fish, scallops, oysters, clams, low-fat vegetarian dishes twice a week or more
6 Fat free vegetarian dishes, fat free seafood dishes every day

Score__

4. **Estimate the number of ounces of meat, cheese, fish *and* poultry you eat in a typical day.**

Include all meals and snacks. (To guide you in your estimate (a piece the size of a deck of cards = 3 oz)

1 hot dog = 1 ½ oz 1 chicken thigh = 2-3 oz 1 slice cheese = 1 oz
4 strips bacon = 1 oz ½ chicken breast = 3 oz 1-inch cube cheese = 1 oz
1 small burger patty = 3-4 oz average T-bone steak = 8 oz meat in sandwiches = 2-3 oz

1 Eleven or more ounces a day
2 Nine to 10 ounces a day
3 Six to 8 ounces a day
4 Four to 5 ounces a day
5 Up to 1 ounce cheese *or* 3 oz lean meat, poultry, shrimp, crab, lobster *or* 6 oz fish, clams, oysters, scallops a day
6 **None** or up to 3 ounces shrimp, crab, lobster *or* 6 ounces fish, clams, oysters, scallops a day

Score__

5. **Which of these have you eaten in the past month?**

1 Bacon, sausage
2 Canadian bacon, turkey or chicken sausage
4 Vegetarian sausage (*Morningstar* links or patties, other soy sausage)
6 **None**

Score_____

TOTAL SCORE (MEAT, FISH AND POULTRY)_____

9/17/01 - Diet Habit Survey (Dietitian Scored)

DAIRY PRODUCTS AND EGGS

Consider your eating habits during the last month. **For each question, circle all numbers that apply.**

6. **Which do you usually use for drinking (don't forget lattes/mochas) or cooking?** (Most lattes/mochas contain whole milk unless you request otherwise).
   office use only
   1 Whole milk
   2 Two percent milk
   4 One percent milk, buttermilk
   5 **None** or skim (nonfat) milk, nondairy beverages (*Edensoy, Rice Dream*, etc)
   Score_____

7. **Which toppings do you use?**
   1 Sour cream (real or imitation including *IMO*), whipped cream
   2 Light/low-fat sour cream, *Cool Whip, Reddi-Whip* aerosol dairy
   3 *Cool Whip Lite*, regular cottage cheese, whole milk yogurt
   4 Low-fat yogurt, low-fat cottage cheese, *Reddi-Whip* aerosol nondairy
   5 1% fat cottage cheese, *Cool Whip Free,* soy yogurt
   6 **None** or nonfat yogurt, nonfat sour cream, nonfat cottage cheese
   Score_____

8. **Which frozen desserts are you most likely to eat at least once a month?**
   1 Regular ice cream (5 g to 18 g fat per ½ cup)
   2 Light ice cream (4 g fat per 1/ 2 cup)
   3 Ice milk, most soft ice cream, frozen yogurt (cream added), *Tofutti*
   4 Sherbet, low-fat frozen yogurt, *Soy Delicious*
   5 **None** or nonfat frozen yogurt, sorbets, Popsicles
   Score____

9. **Which kind of cheese do you use?**
   2 Cheddar, Swiss, Jack, Brie, Feta, Montrachet, Blue, Jarlsberg, whole milk mozzarella, Neufchatel or regular cream cheese, processed cheese (*Velveeta*, American, *Cheese Whiz*), *Kraft Delux Slices, Easy Cheese*, Parmesan
   5 Part-skim mozzarella, light cream cheese, light Cheddar, light Jack, (*Kraft Light Naturals, Alpine Lace-Lo, Velveeta Light* or other part-skim cheeses), Cabot Vermont Cheddar (50% Light), string cheese
   8 Jarlsberg Lite, *Athenos Reduced Fat Feta Cheese*
   10 Light part-skim mozzarella, low-fat and light ricotta, Lite-Line, nonfat Parmesan, Cabot Vermont cheddar (75% Light), *Parm Plus*, soy/rice cheese (cheddar, mozzarella)
   12 **None** or fat free cheeses (Cheddar, Jack, ricotta, cream, *Healthy Choice, Alpine Lace*, etc), soy (Tofu Rella), Almond (cheddar, mozzarella, etc)
   Score_____

10. **Check the type and number of "visible" eggs you eat (scrambled, fried, etc).**
   1 Six or more whole eggs a week
   2 Three to five whole eggs a week
   3 One to two whole eggs a week

4 One whole egg a month

5 **None** or egg whites, egg substitute (*Nulaid, Egg Beaters, Scramblers, Second Nature*, etc)

Score____

11. **Check the type of eggs usually used in food prepared at home or bought in grocery stores.**

1 Whole eggs or mixes containing whole eggs (complete pancake mix, slice-and-bake cookies, etc)

3 Combination of egg whites, egg substitute and whole eggs

5 **None** or egg whites, egg substitute

Score____

TOTAL SCORE (DAIRY PRODUCTS AND EGGS)___

FATS AND OILS

Consider your eating habits during the last month. **For each question, circle all numbers that apply.**

12. **Which kinds of fats are used most often to cook your food (vegetables, meats, etc)?**
    office use only
    1 Butter, shortening (with animal fat), lard, bacon grease, chicken fat
    2 Shortening (with vegetable fat), vegetable oil (cottonseed)
    3 Tub or stick margarine (all except canola), vegetable oil (soybean, olive)
    4 Vegetable oil (safflower, corn), tub or stick margarine (canola)
    5 Vegetable oil (canola)
    6 **None** or use nonstick cooking spray
    Score_____

13. **How much of these "added" fats do you eat in the typical day: peanut butter, margarine, mayonnaise, or salad dressing (including those made with olive oil)?** *Do not count fat free products*

    1 Ten teaspoons or more
    2 Eight to 9 teaspoons
    3 Six to 7 teaspoons
    4 Four to 5 teaspoons
    5 Three teaspoons
    6 **None**

    on toast: *2 tsp margarine*
    on salads: *12 tsp salad dressing*
    on vegetables: *3 tsp margarine*
    on sandwiches: *6 tsp mayonnaise, 2 tsp margarine*
    on potatoes: *3 tsp margarine*
    on pasta, rice: *3 tsp margarine, oil or 6 tsp pesto*

    Score_____

14. **How often do you eat potato chips, corn or tortilla chips, fried chicken, fish sticks, French fries, doughnuts, other fried foods, croissants or Danish pastries?**
    Do not count fat free products
    1 Two or more times a day
    2 Once a day
    3 Two to 4 times a week
    4 Once a week
    5 Less than twice a month
    6 **Never**
    Score_____

15. **Which best describes the amount of margarine, butter, peanut butter, mayonnaise or cream cheese that you put on breads, muffins, bagels, etc?** *Do not count fat free products*
    1 Average
    2 Lightly spread (can see the bread through it)
    4 "Scrape" (can barely see the spread)
    5 **None**
    Score_____

16. **Which kind of salad dressings do you use?**
    1 Real mayonnaise
    2 *Miracle Whip*, light mayo, Caesar, Thousand Island dressing

3 *Best Food's Low-Fat Mayo* (1gm fat/Tbs), Ranch, French, Blue Cheese or Roquefort, vinegar and oil, Italian, Russian, low-fat mayonnaise dressing, *Miracle Whip Light* dressing and Italian dressings

4 Ranch Dressing (mix and light mayo)

5 Low-cal salad dressing, Ranch Dressing (mix and low-fat yogurt)

6 **Use no salad dressing** or fat free mayonnaise, *Miracle Whip* fat free, fat free salad dressings, Ranch dressing (mix and nonfat dairy or yogurt/sour cream), vinegar, lemon juice

Score____

TOTAL SCORE (FATS AND OILS)_____

SWEETS AND SNACKS

Consider your eating habits during the last month. **For each question, circle all numbers that apply.**

17. How often do you eat desserts or baked goods (sweet rolls, doughnuts, muffins, scones, cookies, cakes)? ***Do not count fat free versions***

office use only

1 Once a day
2 Five to 6 times a week
3 Three to 4 times a week
4 Two times a week
5 One time a week or less
6 **Never**

Score ___

18. Which of the following desserts or snacks have you eaten in the last month?

1 Croissants, cheesecake, typical cakes with frosting
2 Pies, cookies, cupcakes, muffins, scones, frosted doughnuts
3 Granola bars (*Nature Valley, Quaker Chewy*)
4 Low-fat muffins, desserts made using low-fat recipes, low-fat cookies (fig bars, ginger snaps, *Snackwell's*), low-fat granola bars (*Power Bar, Quaker Chewy low-fat*)
5 Fat free desserts including angel food cake, fat free cookies
6 **Never eat baked goods listed above** or eat fruit for dessert

Score ___

19. Which of the following snacks have you eaten in the last month?

1 Chocolate, commercial popcorn, *Poppy Cock* popcorn, caramel corn
2 Nuts, potato chips, corn chips, *Doritos* chips, microwave popcorn, homemade popcorn w/butter, *Cracker Jack*, French fries, peanut butter, party/snack crackers (*Ritz*)
4 Tortilla chips, baked potato chips, pretzels, light microwave popcorn, lightly buttered popcorn (1 tsp margarine for 3 cups popcorn), low-fat crackers (soda, graham), *Toby's Tofu Pate Original*
5 Baked tortilla chips, homemade popcorn w/no fat, fat free soda crackers and other fat free crackers, *Toby's Tofu Pate Lite*
6 **Do not eat snacks** or eat fruits and vegetables as snacks

Score ___

TOTAL SCORE (SWEETS AND SNACKS)___

GRAINS, BEANS, FRUITS AND VEGETABLES

Consider your eating habits during the last month. For this part of the quiz, list the number of servings of the following foods you eat each day or week, as specified for the question.

office use only

20. How many pieces of fruit or cups of fruit juice do you consume a day? (not "fruit-flavored" drinks)

_____ cups or pieces Score (cups x 5)___

21. How many cups of vegetables do you eat a day (tossed salad, cooked vegetables, soups, casseroles, etc)? (A typical serving size for tossed salad is 1 to 1 1/2 cups)

_____ cups Score (cups x 5)___

22. How many cups of legumes do you eat a week (refried beans, split peas, white beans, black beans, blackeye peas, lentils, chili, etc)?

_____ cups Score (cups x 5)___

23. List the number of servings of the following you ate last week. (A typical cereal bowl holds 1 1/2 to 2 cups; people typically eat 9 to 12 cups of popcorn).

	Amount eaten LAST WEEK
cooked cereal	_____ bowls/week
ready-to-eat cereal	_____ bowls/week
English muffin	_____ #/week
hamburger bun	_____ #/week
bagel (plain or flavored)	_____ #/week
Pita or pocket bread	_____ #/week
eight-inch tortilla	_____ #/week
plain popcorn (4 cups/serving)	_____ servings/week (1 microwave bag holds 10 ½ cups)
fat free or low-fat muffin	_____ muffins/week
cornbread	_____ pieces/week
Total	_____ Score (svgs x 1.2)____

	Amount eaten LAST WEEK
bread or toast	_____ slices/week
dinner or hard roll	_____ rolls/week
French/Sourdough bread	_____ slices/week
four-inch pancake	_____ pancakes/week
low-fat crackers such as soda, graham, etc (8/serving)	_____ servings/week
regular sized rice cakes (3/serving)	_____ servings/week
mini sized rice cakes (8/serving)	_____ servings/week
pretzels (1 cup or 1 large soft)	_____ cups or #/week

Total_____ Score (svgs x 0.7)_____

24. How many servings of grains and potatoes did you eat last <u>week</u>? Be sure to count these foods when they are in a mixed dish (casserole, burrito, etc). This includes breakfast, lunch and dinner.

	<u>Number of servings eaten LAST WEEK</u>
macaroni, spaghetti and other pastas	_____ cups/week
mashed potato	_____ cups/week
baked potato	_____ large potato/week
rice, corn, bulgur, barley, couscous, other grains	_____ cups/week

Score_____

Score: (cups macaroni, etc x 1.5) + (cups mashed potato x 1.5) + (number baked potatoes x 2) + (cups rice, corn, etc x 2)

TOTAL SCORE (GRAINS, BEANS, FRUITS AND VEGETABLES)_____

BEVERAGES

Consider your eating habits during the last month. **For each question, circle all numbers that apply.**

25. Which of the following reflects your habits regarding alcoholic beverages?
office use only

1 drink = *12 ounces beer*
1 1/2 ounces whiskey, gin, rum, etc
4 ounces wine
1 ounce liqueur

1 One or more drinks a day
2 Four to 6 drinks a week
3 Three drinks a week
4 One to 2 drinks a week
5 One to 3 drinks a month
6 **Do not drink alcoholic beverages**
Score_____

26. Which of the following reflects your habits regarding soda pop, sweetened seltzers, sports drinks, fruit punch, etc? ***Do not count sugar free (diet) drinks***

1 can = 12 ounces
Big Gulp = 32 ounces
1 Liter = 33 ounces
2 Liter = 67 ounces

1 More than 48 ounces a week
2 33-48 ounces a week
3 25-32 ounces a week
4 12-24 ounces a week
5 **None** or less than 12 ounces a week
Score_____

27. How much coffee do you drink? This includes espressos, lattes, mochas, etc.

Guidelines for Espresso Drinks

"Short" = 8-10 ounces
Small ("Tall") = 12 ounces
Medium ("Grande") = 16 ounces
Large ("Venti") = 20 ounces

1 More than 40 ounces (more than 5 cups) a day
3 25-40 ounces (4 to 5 cups) a day
4 6-24 ounces (1 to 3 cups) a day

5 **None** or less than (1 cup) a day

Score_____

TOTAL SCORE (BEVERAGES)____

SALT

Consider your eating habits during the last month. **For each question, circle all numbers that apply.**

28. Which type of "salt" do you normally use?

office use only

1 Regular salt, sea salt, flavoring salts (seasoned salt, garlic salt, onion salt, celery salt, lemon pepper, etc), regular soy sauce
3 Combination of regular and *Lite Salt*
4 *Lite Salt*, lower-sodium soy sauce, reduced-sodium flavoring salts
5 **None** or salt substitute (100% potassium chloride), Salt-free products (*Mrs. Dash*, etc)

Score_____

29. How often do you add salt to your food at the table?

1 Always
2 Frequently
4 Occasionally
5 **Never**

Score_____

30. Which type of salt and how much do you use in cooking potatoes, rice, pasta, vegetables, meat, casseroles and soups?

1 Regular salt (typical amount) or eat in restaurants 4 or more times a week
2 Regular salt (1/2 typical amount) or *Lite Salt* (typical amount)
4 *Lite Salt* (1/2 typical amount)
5 **None** or salt-free products (*Mrs. Dash*, etc), salt substitute

Score_____

31. Which type of cereals do you use?

1 Typical dry cereals (sweetened or unsweetened) or cereals cooked with regular salt (typical amount)
3 Combination of typical dry cereals and salt-free dry cereals (Shredded Wheat, Puffed Wheat, Puffed Rice) *or* cereals cooked with regular salt (1/2 typical amount) or *Lite Salt* (typical amount)
5 **Do not eat cereal** or eat salt-free dry cereals (Shredded Wheat, Puffed Wheat, Puffed Rice, etc) *or* cereals cooked without salt

Score_____

32. How often do you use typical canned, bottled, or packaged foods:

salsa	*salad dressings*	*boxed noodle entrees*
Picante sauce	soups (chicken broth)	frozen entrees
BBQ sauce	chili	canned beans
ketchup	cured meats (lunch meat)	canned vegetables

1 More than 15 times a week or eat in restaurant 4 or more times a week
2 Ten to 14 times a week
3 Six to 9 times a week

5 Five times a week or less

Score

TOTAL SCORE (SALT)_____

RESTAURANTS AND RECIPES

Consider your eating habits during the last month.
For each question, circle all numbers or check the choices that apply.

33. How often do you eat breakfast at a restaurant or cafeteria (this includes coffee shops)?
office use only

1 More than twice a week
2 Once or twice a week
3 Once a week if you eat low-fat (unbuttered toast or English muffin, oatmeal)
5 Less than once a month
6 **Never**

Score_____

34. How often do you eat lunch at a restaurant or cafeteria or eat "take out"?

1 Daily
2 Five days a week
3 Two to 4 days a week
4 One day a week
5 Less than once a month
6 **Never**

Score_____

35. How often do you eat dinner at a restaurant or cafeteria or eat "take out"?

1 More than 3 times a week
2 Two to 3 times a week
3 Once a week
4 Once or twice a month
5 Less than once a month
6 **Never**

Score_____

36. Check the choices you make when eating in restaurants or cafeterias.

___Select restaurants that offer low-fat choices and order those choices
___Order toast, muffins, cereal, pancakes, waffles for breakfast
___Order soup (not cream), salad or other meatless, cheeseless entrees for lunch
___Order vegetarian pizzas with half the cheese
___Avoid cheese, eggs, bacon on salads and avoid potato and macaroni salads
___Put garbanzo or kidney beans on salad at the salad bar
___Use a very small amount of salad dressing
___Order a fish, shellfish, chicken or lean red meat entree (but not fried)
___Use no more than 1 pat of margarine at any meal
___Order fruit, sorbet, sherbet, frozen yogurt or skip dessert

SCORE: (0-1 checks = 1; 2-3 checks = 2; 4-5 checks = 3; 6-7 checks = 4;
8-10 checks; or eat out less than once a month = 5)

Score_____

37. How often do you eat foods made using low-fat recipes or cook low-fat without recipes?

1 Once a month or less
2 One to 2 times a week
3 Three to 4 times a week
4 Five to 6 times a week
5 Everyday

Score_____

TOTAL SCORE (RESTAURANTS AND RECIPES)___

SEAFOOD

Consider your eating habits during the last month. **For each question, circle all items that apply.**

38. **How often do you eat fish? (tuna, snapper, perch, sole, halibut, cod, salmon, shrimp/prawns, crab, lobster, scallops, clams, oysters, sardines, etc).**

office us only

1 **Do not eat fish** *or* eat fish less than once a month
2 One to 3 times a month
3 Once a week
4 Two times a week
5 Three or more times a week *or* **eat vegetarian with no added fat**

Score_____

39. **Which fish (fresh, frozen or canned) have you eaten in the last month?**

1 **Ate no fish in the last month**
2 Scallops, clams, mussels, snowcrab (surimi)
3 White fish (perch, cod, sole, halibut, snapper), oyster, lobster, tuna, crab
4 Trout, steelhead, herring, catfish, salmon (Atlantic, pink)
5 Salmon (Coho, red, Chinook), mackerel, sardines, shrimp/prawns, squid *or* **eat vegetarian with no added fat**

Score_____

TOTAL SCORE (FISH)_____

Appendix 7

Appendix 7: Scoring of Individual Questions for the DHS

For the 20 questions relating to intake of cholesterol and saturated fat, scores were assigned to foods based on the Cholesterol-Saturated Fat Index (CSI). Foods with a low CSI are lower in cholesterol and saturated fat than those with a higher CSI. Foods with a high CSI received a score of 1, and foods with a low CSI were assigned a score of 5. Salty foods were classified in a similar fashion: high salt foods receiving a score of 1, and low salt foods receiving a score of 5. A score of 5 was assigned for each serving of the following carbohydrates consumed: fruits, vegetables, grains, and beans. Low-fat choices made in restaurants also received a score of 5.

Appendix 7: Scoring of Individual Questions for the DHS (continued)

THE DIET HABIT SURVEY

GOAL SCORES FOR INDIVIDUAL QUESTIONS FOR 2000 CALORIES WOMEN/CHILDREN

Question Number	Current U.S. Diet 37% fat	Lower Fat, Higher Carbohydrate Diet			
		30% fat	25% fat	20% fat	10% fat
1	<3*	3	4	5	6
2	<2	2	3	4-5	6
3	<3	3	3-4	4-5	6
4	<3	3	4	5	6
5	<2	2	3	5	6
6	<3	3	4	5	5
7	<4	4	5	5-6	6
8	<5	5	8-9	8-11	11
9	<3	3	3-4	4-6	6
10	<4	4	5	5	5
11	<3	3-5	5	5	5
12	<4	4	4	5-6	6
13	<3	3	4	5	6
14	<3	3	4	5	6
15	<2	2	4	4-5	5
16	<3	3	4	5-6	6
17	<4	4	5	6	6
18	<3	3	4	4-6	5-6
19	<4	4	4	4-5	5-6
20	<10	10-11	12-13	14-16	14-16
21	<5	5-8	9-12	13-18	19-25
22	<3	3-7	8-10	11-15	16-23
23	<24	24-29	30-33	34-37	38-45
24	<3	3-7	8-12	13-18	19-27
25	<3	3	4	4-6	4-6
26	<3	3	4	5	5
27	<3	3	4	4-5	4-5
28	<3	3	4	4-5	4-5
29	<4	4	5	5	5
30	<2	2	4	4-5	4-5
31	<3	3	3	5	5
32	<2	2	3	5	5
33	<2	2	2	3	6
34	<3	3	4	4-5	6
35	<2	2-3	3	4-5	6
36	<3	3	4	5	5
37	<3	3	4	5	5
38	<3	3	4	4-5	4-5
39	<2	2	3	3-5	3-5

*< means less than

Appendix 8

Appendix 8: Question Categories of The Diet Habit Survey

Meat, Fish and Poultry
Dairy Products and Eggs
Fats and Oils
Sweets and Snacks
Grains, Beans, Fruits, and Vegetables
Beverages
Salt
Restaurants and Recipes
Seafood

Appendix 9

Appendix 9: Diet Composition Estimates of The Diet Habit Survey

Corresponding Nutrient Composition in Diet	Current U.S. Diet: 37% Fat	Lower Fat Diet: 30% Fat	Lower Fat Diet: 25% Fat	Lower Fat Diet: 20% Fat	Lower Fat Diet: 10% Fat
Cholesterol, mg/day	<300	<200	<200	<100	<75
Saturated Fat, % Calories	11	9	8	5	2
Cholesterol-Saturated Fat Index/day	37	30	28	16	8
Fat, % Calories	33	28	25	20	10
Carbohydrate, % Calories	52	57	60	65	75
Protein, % Calories	15	15	15	15	15
Sodium, mg/day	3300	2875	2300	1725	1725
Potassium, mg/day	2800	3000	3900	3900	3900

*US Department of Agriculture, Agriculture Research Service. 1997. Data tables: Results from USDA's 1994-96 Health Knowledge Survey, [Online]. ARS Food Surveys Research Group. Avaliable (under "Releases"):http//www.barc.usda.gov/bhcc/foodsurvey/home.htm {visited December 1997}

Appendix 10

Appendix 10: Scores for 2000 Calories (Women/Children)

Score	Present U.S. Diet	30% Fat	Lower-Fat Diets 25% Fat	20% Fat	10% Fat
Cholesterol-Saturated fat	<61.0	61.0-71.5	71.6-88.0	88.1-110.0	110.1-115.0
Carbohydrate	<45.0	45.0-64.5	64.6-82.5	82.6-105.0	105.1-136.0
Beverages	<9.0	9.0-11.5	11.6-12.5	12.6-16.0	12.6-16.0
Salt	<14.0	14.0-16.5	16.6-21.0	21.1-25.0	21.1-25.0
Restaurants & Recipes	<13.0	13.0-15.5	15.6-19.0	19.1-25.5	25.6-28.0
Seafood	<5.0	5.0-6.0	6.1-7.5	7.6-10.0	7.6-10.0
Total	<147.0	147.0-185.8	185.9-230.8	230.9-282.0	282.1-330.0

Appendix 11

Appendix 11: Diet Habit Survey Consent Form

OREGON HEALTH & SCIENCE UNIVERSITY

Consent & Authorization Form

TITLE: Are nutritional beliefs consistent with the dietary practices of female endurance walkers?

PRINCIPAL INVESTIGATOR: Elizabeth Legg, MS Student (503) 494-7596

CO-INVESTIGATORS: Dorothy Hagan, PhD, RD, LD (503) 494-7596
Victoria Warren-Mears, PhD, RD (503) 494-7596
Sonja Connor, MS, RD (503) 494 7775

The Principal Investigator (PI) must be listed on the consent form and must be the same PI listed on the IRQ. It is recommended that no more than 5 additional personnel be listed, but others may be listed if required by the sponsor. The phone number(s) should match the phone number(s) on the HIPAA Research Authorization (HRA) and IRQ.

SPONSOR: Dietetics and Nutrition, Masters of Science in Clinical Nutrition, OHSU

This form contains important information about the study in which you are being invited to participate. Please read the form carefully, ask questions of the investigators or others who are obtaining your consent to participate in the study, and take time to think about your participation. You may want to discuss the study with your family or friends before agreeing to be in the study.

What is the purpose of this study?

The purpose of this study is to determine the diet habits and diet perceptions of female endurance walkers.

What is required to participate in this study?

To qualify for this study, you must meet the following criteria:

1. Participate in Women Walk the Marathon®
2. Female
3. Give consent to participate in the study

What can I expect as a study participant?

This study requires filling out the Diet Habits Survey (all participants) and participation in a discussion group (not all participants). You will be asked to fill out the survey once and if you choose to participate in a focus group you will be presented with a Media Consent Form to sign and will need to agree to the audio taping in this part of the study. Data collection will take place starting the last weekend in July 2005 and will conclude in August 2005.

If you have any questions regarding this study now or in the future, contact Dorothy Hagan (503) 494-7596.

What effect will this study have on my care?

Being in this study will not affect any care that you might receive at OHSU.

How will my privacy be protected?

We will protect your privacy in the following ways:

1. Your name or other protected information will not be used. Surveys will be anonymous and transcribed discussion group data will not include names.
2. All investigators will be able to access your information.

The specific health information we will collect from you will be limited to your responses to questions in a questionnaire the and focus group interview with the investigator. The purposes of our use and disclosure of this health information are described in the Purpose section of this Consent & Authorization Form.

The persons who are authorized to use and/or disclose your health information are all of the investigators who are listed on page one of this Research Consent Form and the OHSU Institutional Review Board.

The persons who are authorized to receive this information are Dietetics and Nutrition, Masters of Science in Clinical Nutrition program, OHSU and the Office for Human Research Protections as required for their research oversight and public health reporting in connection with this research study. This authorization will expire and we will no longer keep protected health information that we collect from you in this study upon completion in June 2006.

What are the possible risks of participating in this study?

Although we have made every effort to protect your identity, there is a minimal risk of loss of confidentiality.

What are the possible benefits of participating in the study?

You may or may not personally benefit from being in this study. However, by serving as a subject, you may help us learn how to benefit women in the future.

Will it cost anything to participate?

There is no cost to participate in this study and no pay for participation will be given to participants.

What if I am harmed or injured in this study?

If you believe you have been injured or harmed while participating in this research and require immediate treatment, contact Dorothy Hagan (503) 494-7596.

The Oregon Health & Science University is subject to the Oregon Tort Claims Act (ORS 30.260 through 30.300). If you suffer any injury and damage from this research project through the fault of the University, its officers or employees, you have the right to bring legal action against the University to recover the damage done to you subject to the limitations and conditions of the Oregon Tort Claims Act. You have not waived your legal rights by signing this form. For clarification on this subject, or if you have further questions, please call the OHSU Research Integrity Office at (503) 494-7887.

What are my rights as a participant?

If you have any questions regarding your rights as a research subject, you may contact the OHSU Research Integrity Office at (503) 494-7887.

You do not have to join this or any research study. If you do join, and later change your mind, you may quit at any time. If you refuse to join or withdraw early from the study, there will be no penalty or loss of any benefits to which you are otherwise entitled.

You do not have to join this or any research study. If you do join, and later change your mind, you may quit at any time. If you refuse to join or withdraw early from the study, there will be no penalty or loss of any benefits to which you are otherwise entitled.

You have the right to revoke this authorization but information provided will be anonymous, therefore it cannot be removed from the study because there will be no way to link the information to a specific subject. If you do send a letter to the Principal Investigator, the use and disclosure of your protected health information will stop as of the date he/she receives your request. However, the Principal Investigator is allowed to use information collected before the date of the letter or collected in good faith before your letter arrives. Revoking this authorization will not affect your health care or your relationship with OHSU.

If the researchers publish the results of this research, they will do so in a way that does not identify you unless you allow this in writing.

You may be removed from the study if the investigator stops the study, if the sponsor stops the study, and if you do not follow instructions.

You may choose to withdraw with no penalties or loses.

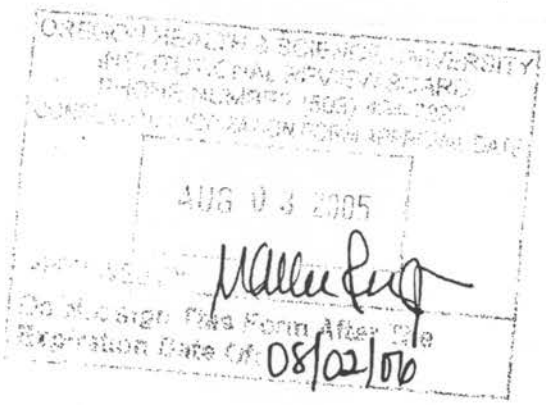
The participation of OHSU students or employees in OHSU research is completely voluntary and you are free to choose not to serve as a research subject in this protocol for any reason. If you do elect to participate in this study, you may withdraw from the study at any time without affecting your relationship with OHSU, the investigator, the investigator's department, or your grade in any course.

To participate in this study, you must read and sign this consent and authorization form. If you withdraw your authorization for us to use and disclose your information as described above, you will be withdrawn from the study.

We will give you a copy of this form.

SIGNATURES:

Your signature below indicates that you have read this entire form and that you agree to be in this study.



Signature of Participant_____

Print Name_____
Date_____

Signature of PI_____

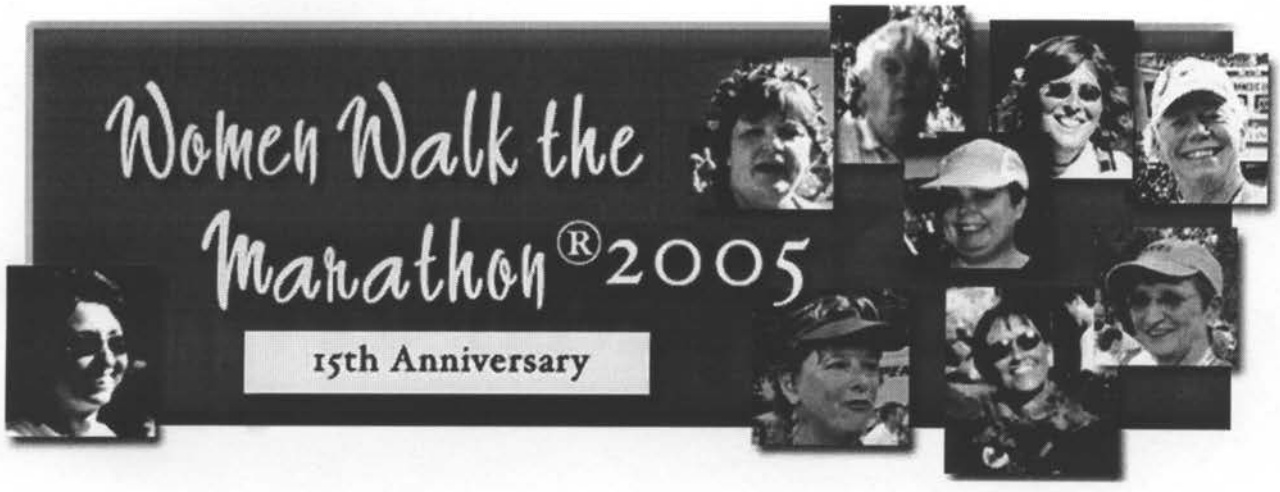
Print Name_____
Date_____

Appendix 12

Appendix 12: Diet Habit Survey Letter of Instructions

Hello!

Thanks for helping me with my project.



Survey Instructions:

1. Read and sign the consent form.
2. Please do not put your name on the survey.
3. Read through the survey and answer questions, please do not leave any blank questions.
4. Fold and put in stamped/addressed envelope and mail.
5. You are done…Thank you so much! I'll be getting back to you with the results.

I am an athlete!®