

**Evaluation of Health 200 - Wellness Lifestyles:
Can a University General Education Course in Wellness Lifestyles
Enhance Students' Behaviors, Attitudes and Knowledge
Regarding Their Health?**

by

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**A Dissertation
Presented to
The Faculty of the Graduate School
Virginia Polytechnic Institute and State University
In partial fulfillment of the degree of

Doctorate of Education**

Curriculum and Instruction: Health Education

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**June 30, 1998
Blacksburg, Virginia**

Keywords: Wellness, Behavior, Attitude, Knowledge

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(ABSTRACT)

The primary purpose of this study was to determine whether a required wellness course affected a change in the behaviors of college students. A post-course evaluation, which examined the relation between attitude, knowledge, and behavior, was conducted six months following the completion of the course. A secondary purpose of the research was to solicit information from participating students concerning which portions of the course they felt benefited them and those that did not. This was done to identify potential problems within the course in order to make improvements on content and structure.

A survey was mailed six months after the completion of the course to 110 students who were enrolled in Health 200 Wellness Lifestyles in the 1997 spring semester at Radford University. Forty-five responses were returned for a return rate of 41%.

An analysis of self-reported data discloses that student behaviors improved from before taking Health 200 to six months after completing the course in all behavior categories with the exception of alcohol consumption. A paired t test, which was conducted to compare knowledge between the end of the semester and the post-test, indicated a significant loss of knowledge at a p level of $<.05$. Results from a simple linear regression analysis revealed that 17.46% of the variability in behavior was attributed to attitude.

Information gathered from the survey helped identify strengths and weaknesses of the course, which became instrumental in proposing recommendations for making course improvements.

Dedication

To my husband, Sam and our children Jason and Nichole. No achievement in life is the result of a single effort, without your love, support and belief in me I could not have achieved this goal. Thanks Sam for taking up the slack, your patience and for being my best friend, I could never have done this without you. To Nichole, thanks for getting married in the middle of this endeavor, it gave me a much needed break and the best time of my life. And to Jason, who gave me the incentive to finish, Germany here I come. Thanks, you are all the greatest.

A special thanks to my mom. Your strength and success in the face of adversity gave me the strength and determination to pursue this goal.

Acknowledgements

I find the great thing in this world is not so much where we stand, as in the direction we are moving. Oliver Wendell Holmes

In education it is important to continue moving, because when we choose a direction and start moving we continue to learn. In the last few years it was the charge of Dr. Baffi and my committee to encourage, to challenge, and to motivate me to keep moving. For this, I want to thank you, for without this opportunity I may have begun to stand still and standing still will not foster personal growth and without personal growth we become stale and stagnant. This alone will defeat us in our efforts to help our students learn and grow.

No achievement in life is the result of a single effort but the culmination of the contributions of many. There are always individuals who support, encourage, and mentor those of us who are striving to meet our goals. Therefore, I would like to thank those individuals.

Dr. Baffi, thank you for reminding me there was a light at the end of the tunnel. Your time, patience, and encouragement have been deeply appreciated.

Dr. Milton, thank you for the hours you spent helping me enter, understand and interpret the data.

To Drs. Fortune, Hertzler, Graham, and Redican, thank you for your suggestions and encouragement throughout this endeavor.

Special thanks to Dr. Myrle Jones for making sure all the i's were dotted and t's were crossed.

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Chapter I

Introduction

Today, more than ever, there is increasing concern surrounding the well being of our nation's college students. These are not totally new concerns. During the mid 1800's, Dr. Edward Hitchcock, a physician and professor at Amhurst College, warned students of the dangers of smoking and alcohol use, while stressing the importance of a nutritious diet, regular exercise, and safe reproductive practices (Sloane and Sloane, 1986). In the years following, the content of college health courses changed little at Amhurst, Williams, Tufts, and Harvard except for the inclusion of lectures on prominent infectious diseases and social influences which could affect one's health. For example, hygiene classes taught in the 1900's included information on communicable diseases, such as tuberculosis, as well as lectures on the importance of temperance.

In 1930, Dr. Delbert Oberteuffer of the Teachers College at Columbia University became concerned when he observed mortality tables indicating cardiovascular and renal diseases being responsible for an increasing number of deaths. His advice to colleagues was to “ spend the time in a hygiene course teaching young people how to protect themselves against these threatening maladies.” and “ assist the student to live his present life and of giving him the intellectual tools with which to solve his present problems and prepare for the future” (Oberteuffer, 1930, p. 95).

Additional support for the idea of teaching health protection and prevention appeared with the publication of one of the most significant documents of the time, *Health Education* (Wood, 1930). The document outlined three specific elements that needed to be included in the health education curriculum. These were: “ 1) activities and situations affording direct motivation for health instruction, 2) knowledge or

information of such facts and procedures as will make health practices intelligent, and 3) practice and application of health instruction which will help establish permanent positive health habits and attitudes (Wood, 1930, p. 251).

In 1937, the Second National Conference on College Hygiene surveyed forty-eight colleges regarding the major hygiene problems their students encountered. They were then asked to relate these problems to topics covered in their colleges' courses. The problems most identified were prevention of communicable diseases and sexually transmitted diseases; problems with eating habits, nutrition and dieting; sleep, rest, relaxation and preventing fatigue; mental, sexual and social hygiene; and physical recreation. As problem areas were identified, college health courses began including information on drugs and narcotics, sexual hygiene, and medical care, in addition to the standard information on disease prevention, social and mental hygiene, nutrition and exercise (Means, 1962, pp. 280-281).

Even though the terminology has changed during the hundred years since Dr. Hitchcock and his colleagues implemented the nation's first comprehensive health instruction program on college campuses, the primary concerns remain the same. Today's college students demonstrate many of the same counter productive behaviors as students in the past. Behaviors such as the use of alcohol, tobacco products and other drugs, poor nutritional habits, low levels of physical activity, ineffective and inappropriate stress management skills, and participation in sexual behaviors that could result in an unwanted pregnancy or sexually transmitted disease, are only some examples of the issues that plague the health and well being of college students.

In 1984, the American College Health Association (ACHA) published the *Recommended Standards and Practices for a College Health Program* (*Journal of American College Health*, 1984). These standards serve as the foundation for health education and promotion initiatives for higher education. It is the goal of the ACHA that colleges and universities commit to personal and community health education. Their recommendations for achieving this goal include requiring students to have

formal instruction in the areas of human function, health promotion and protection, health consumerism, and the development of skills used in defining and solving health problems (*Journal of American College Health*, 1984).

Since the publication of the *Recommended Standards*, the ACHA has continued to be actively involved in the preparation and production of the health objectives for adolescents and young adults in what is considered to be the nation's most comprehensive health care document published to date. This document, the Surgeon General's Report, "*Healthy People 2000: National Health Promotion and Disease Prevention*," focuses on initiatives directed toward three primary health goals for Americans: increasing the span of healthy life through health promotion, reducing health disparities by way of health protection, and achieving access to preventive services (Department of Human Services, 1990).

Of particular importance to this investigation are the health priorities specific to adolescents and young adults. *Healthy People 2000* identifies two primary categories which relate to preventable health problems of adolescents and young adults: injuries and violence, and emerging lifestyles that may affect their health in later years (Department of Human Services, 1990, p. 16). In conjunction with the objectives of *Healthy People 2000*, the ACHA has contributed several publications outlining initiatives specific to the health problems of the college population: *Healthy Campus 2000-Making it Happen* (1991), *College Health 2000: A Perspective Statement* and *College Health 2000: Strategies for the Future* (1991). The central theme of these documents concerns the timely delivery, by health and wellness educators, of appropriate health promotion and health protection information to students. Recommendations include making medical and mental health services easily accessible and affordable to students, and including and improving the delivery of information to them on such topics as alcohol and drug use, sexual health, smoking, social and emotional health, stress management, nutrition and eating disorders and disease prevention (Gordon, 1995).

J. Michael McGinnis (1987) emphasized the importance of the effect lifestyle behaviors have on the development of chronic disease and their relationship to premature mortality. He predicted that prevention and intervention services would become increasingly important on the nation's college campuses and that these services include screenings for conditions that may lead to chronic diseases, such as hyperlipidemia and hypertension, as well as programs for suicide prevention, sexual assault, eating disorders, and substance abuse. Since 1987 McGinnis' predictions have come to fruition. Today, most college campuses provide intervention and prevention services, as well as a wide range of additional health services.

Problem Statement

In light of the health objectives for adolescents and young adults outlined in *Healthy People 2000*, recent findings by the CDC, and recommendations by the American College Health Association, it seems logical that health promotion should be a primary concern at the nation's colleges and universities (Douglas, Collins, Warren, Hann, Gold, Clayton, Ross, and Kolge, 1997; Waigandt, Brown, Barnes, and Chen, 1997). However, as reported in the *Journal of School Health* (1991), only 16.5 % of the 248 colleges and universities replying to a national survey reported requiring students to take a health course for general education credit (Kittleson and DeBarr, 1991).

Higher education can no longer afford to ignore the urgency of developing and implementing proactive measures to support healthier living for college students. Since the publication of Dunn's *High Level Wellness* (1961), people have begun to approach health from a perspective whereby wellness is defined as "an integrated method of functioning which is oriented toward maximizing the potential of which the individual is capable, within the environment where he is functioning" (Dunn, 1969).

Ardell (1979), Hettler (1980), Greenberg (1985) and Hamrick, Anspaugh, and Ezell (1986), and others have been instrumental in the evolution of our current understanding of wellness. According to these individuals, wellness is *an integration of the physical, mental, emotional, social, spiritual, and environmental or occupational aspects of life*. That is, wellness is a balance; it is an unending process whereby individuals actively pursue a lifestyle of health-promoting behaviors. This view is in direct agreement with Dr. Hitchcock's earlier concept of what college health should be. Wellness, thus, is a way of living that results from an individual's acceptance of responsibility for the personal choices he or she makes.

As Americans approach the next millennium, an issue that grows increasingly more important is health care. We have supported and continue to support a health care system that is basically treatment oriented. In 1996, health care cost Americans 1.04 trillion dollars, or 13.6% of the gross domestic product (Health Care Financing Administration, 1998). Presently, less than 5% of the health care dollar is used for preventive measures. Nancy-Ann Nin DeParle, administrator of the Health Care Financing Administration, has said that Medicare will be solvent only until the year 2010 (Health Care Financing Administration, 1998). Projections for health care expenditures indicate more financial responsibility for health care will be placed on the individual. With this in mind, it becomes increasingly clear that educational initiatives become a fundamental and integral component in improving lifestyle behaviors.

To this end, in the fall of 1990 the Department of Physical and Health Education at Radford University implemented a new course to meet the University's general education requirement in Physical and Health Education. This course, Health 200-Wellness Lifestyles, was developed to assist students in identifying and modifying behaviors that place their health at risk, and to bring them into the next century as health informed individuals. The course design addresses the problem areas outlined in *Healthy People 2000* and was organized in conjunction with the principal components of health promotion: health education, strategies for behavioral change, risk factor detection, health protection, and activities for health enhancement

and health maintenance. The primary objectives of the course are to assist students in becoming knowledgeable in several life-style areas, to develop an awareness of their behaviors that place their health in jeopardy, and to help them acquire the skills to make appropriate life-style changes. The subject areas include: 1) stress management, 2) exercise, 3) nutrition/weight management, 4) substance use/abuse, 5) sexual health, 6) chronic disease prevention, 7) self-examination, and 8) consumer health.

Since its inception, Health 200 had not been evaluated. As with any program it becomes necessary periodically to review and evaluate whether the course is effective in meeting the goals and objectives.

Purpose

The purpose of this study was to investigate the efficacy of Health 200, Wellness Lifestyles. The evaluation was directed toward student behaviors before and after the course, student attitudes toward health, post course knowledge retention and the relation between behavior, attitude, and knowledge. The investigation was also designed to provide information that would direct instructors toward lecture topics and activities that may need to be strengthened and improved.

Significance

During the last fifteen years, there has been a major shift in university health courses, from merely presenting health information to one that stresses individual responsibility for identifying and correcting behaviors that place an individual's health at risk.

A significant amount of research has been conducted by industry relative to the advantages of wellness programming at work-site locations. However, only

limited research has been conducted and published that describes the benefits of wellness programming in university settings.

Only a few university wellness programs have been evaluated. The results support the existence of such programs. On the other hand, not many comprehensive wellness courses, such as the course taught at Radford University, have been evaluated. Health 200 is no exception. Therefore, an evaluation of Health 200, Wellness Lifestyles would help in determining whether the course objectives are being met and if not what changes should be made to have a more effective course.

Questions

The specific questions addressed in this study were:

1. As a result of taking Health 200, do students make changes in health related behaviors?
2. Are students' health related attitudes associated with the performance of healthy behaviors?
3. Do students retain knowledge following the completion of Health 200?

Delimitation

The following delimitation was posed upon this investigation:

The study was confined to those students who were enrolled in Health 200 the spring semester of 1997, sections 5,6,13,14,15,16,17, & 18.

Limitations of the Study

The following factors limit the interpretation of the data:

1. The survey instrument was developed for college student wellness program participants at Radford University and may not be suitable for use in evaluating other programs.
2. The study relied on self-reported information.

Assumptions

The following assumptions were made:

1. The person to whom the survey was mailed completed it.
2. The person completing the survey did not refer back to course notes, texts, the Internet, or the library.
3. The person answering the survey did not consult with anyone regarding questions on the survey.
4. The person answering the survey understood all of the questions.
5. The person answering the survey did so in an honest manner.

Operational Definitions

Attitude: Evaluative judgments about particular objects, issues, persons, or any identifiable aspect of the environment (Baron and Graziano, 1991).

Behavior Change: Successful progress in decreasing the participation in a negative lifestyle behavior or complete cessation of the behavior. Successful progress in increasing the frequency of participation of a positive behavior or complete adoption of the behavior.

Healthy Behaviors: Behaviors which are recognized as health promoting:

Not smoking, if one consumes alcoholic beverages doing so in moderation, reducing total fat and saturated fat consumption, eating a healthy diet, exercising, controlling stress, maintaining an appropriate lean to fat ratio, getting appropriate rest, not using illegal drugs, having regular medical checkups and performing self-exams, and using appropriate safety precautions.

Health Education: "Health education is the process of the continuum of learning which enables people, as individuals and as members of social structures, to voluntarily make decisions, modify behaviors, and change social conditions in ways which are health enhancing." (Joint Committee on Health Education Terminology, 1991)

Health Promotion: "Health promotion and disease prevention are the aggregate of all purposeful activities designed to improve personal and public health through a combination of strategies, including the competent implementation of behavioral change strategies, health education, health protection measures, risk factor detection health enhancement and health maintenance." (Joint Committee on Health Education Terminology, 1991)

Intervention: "An activity or experience to which those in the target population will be exposed or in which they will take part." (McKenzie and Jurs, 1993)

Knowledge: The attainment of facts and ideas with enough familiarity to allow for application of the learned concepts (Watts, 1974).

Wellness: "An approach to personal health that emphasizes individual responsibility for well-being through the practice of health-promoting life-style behaviors." (Hurley and Schlaadt, 1992)

Summary

Since the mid 1800's there have been few differences in the types of maladies experienced by college students. College health programs of the past and present still address issues concerning sexuality, nutrition, fitness, and infectious and chronic diseases. However, what has changed is the level or importance and priority that governmental health initiatives are placing on the health and well being of college students (Department of Human Services, 1990). According to the Centers for Disease Control and Prevention, college students are participating in behaviors that have impending health risk. The document *Healthy People 2000* has established objectives directed toward the reduction of these behaviors (Department of Human Services, 1990). College and university health services are in agreement with and support the national initiatives by working to improve promotion and prevention services for students. One of the primary initiatives involves improving academic involvement. However, when surveyed, only 16.5% of institutions that responded require all undergraduate students to complete a health education course (Kittleson and DeBarr, 1991).

Today there is a departure from the traditional treatment philosophy associated with health care. Thanks to the forward thinking of individuals such as Oberteuffer (1930), Dunn (1961), Ardell (1979), Hettler (1980), Greenberg (1985), and others, health promotion and health education have taken a direction toward instilling personal responsibility as a major factor in an individual's quest for achieving health.

Chapter II

Review of the Literature

In this chapter a review of some of what is known and has been reported in the professional literature regarding university based wellness courses is presented. Specifically, this chapter is divided into the following sections: introduction, college wellness programs, promotion and intervention strategies, and predisposing factors.

Introduction

At present the most immediate problems involving the health status of Americans are focused on the relationship between lifestyle behaviors and the development of chronic diseases. Diseases of the heart and cardio-vascular system, pulmonary diseases, diabetes and certain cancers are highly correlated with smoking and use of tobacco products, alcohol consumption, poor nutritional habits, sedentary lifestyles, obesity and poor stress management. In order to reduce the frequency of developing chronic diseases, it becomes necessary to encourage and empower individuals with the knowledge and skills to make health-enhancing choices.

In 1995, Kochanek and Hudson reported that the leading causes of death for college students were accidents, homicide, suicide, cancer, heart disease and AIDS. This same year the Centers for Disease Control and Prevention (CDC) conducted the first national survey, the *National College Health Risk Behavior Survey* (NCHRBS), concerning the health status and risk behaviors of college students. The survey was conducted at 136 two and four-year institutions and included a random sample of 4,609 undergraduate students. Results of the survey revealed that thirty days prior to the administration of the survey, 28% of students reported operating a motor vehicle after consuming alcohol; 34% reported consuming five or more drinks during a single

drinking episode; 31% smoked cigarettes regularly; 49% had smoked marijuana; 34.8% had six or more sexual partners; only 28% of the sexually active students reported using a condom each time they had intercourse; 20.7% reported being overweight, and 8.4% carried weapons (Douglas, et al, 1997; Waigandt, et al, 1997). The results of the NCHRBS investigation confirm that college students are participating in behaviors that increase their risk of accidental death and may contribute to the future development of chronic disease.

Ansbaugh, Hamrick and Rosato (1997) report that, of the top ten causes of death for all ages in 1994, chronic diseases were responsible for approximately 90% of all deaths in this country. The list of chronic diseases included, coronary heart disease (CHD/coronary vascular disease (CVD), cancer, stroke, chronic obstructive pulmonary disease (COPD), diabetes mellitus, HIV infection, cirrhosis and chronic liver disease. The aforementioned diseases are diseases of lifestyle. For example, diseases of the cardiovascular system are highly correlated with leading a sedentary lifestyle, eating a diet high in saturated fat, not managing stress well, and use of tobacco products. Cancers are associated with the use of tobacco products (smoking, chewing and dipping), alcohol consumption, high fat diets, environmental carcinogens and overexposure to the sun. Other lifestyle behaviors having a major impact on the development of chronic diseases include inactivity, not participating in safer sex behaviors and drug use.

In 1984 the *Journal of American College Health*, published the “Recommended Standards and Practices for a College Health Program” (*Journal of American College Health* fourth ed., 1984). These guidelines include the following recommendations for the promotion of health on the nation’s college and university campuses: Programs should

- provide a “variety of physical activity, graduated in intensity, in which students with wide ranges of skills and energies may participate with the satisfaction which will encourage continuity of such activity into later life.” p.145

- “support a program of health education which can improve student capabilities to function productively both in school and throughout life.” p.150
 - "improve self-care skills for managing chronic disease and long-term illness and disabilities;" p.150
 - "promote knowledge and skills for preventing disease and promotion of well-being." p.150
- “...offer at least basic courses in personal and community health." p. 151
Course objectives should include:
 - identify the function of organ systems
 - realize the individual’s role in community promotion of health
 - encourage behaviors which promote optimal health
 - assist individuals in becoming intelligent health consumers
 - help students develop skill in defining and solving health problems

In an attempt to determine compliance with these recommendations, Kittleson and DeBarr (1991) conducted a survey to assess the number of colleges teaching a health course for general education. Surveys were sent to department chairs and program heads listed in the 1981 *Eta Sigma Gamma Directory* and the 1988 *Health Education Directory*. Three hundred fifteen surveys were mailed; two hundred forty-eight or 78.7% were returned. Of the returned surveys, 213 institutions or 85.8% offer a general health education course. However, only 35 or 16.5% reported that all undergraduate students are required to take the course in order to graduate. Results appear to indicate that although many schools offer a course that may be taken for general education, few deem it important enough to require students to take a course to further their education in the area of health.

Sivik, Butts, Moore, and Hyde (1992) report that just 15.6% of the wellness programs offered on college and university campuses are for students only. The remaining 84.4% of the wellness programs were for faculty, staff, and students. Sivik, et al, (1992) noted that participation in these programs was self-selected and not required. The significance of this information is that at a time when health is a national priority (*Healthy People 2000, Recommended Standards*) institutions of

higher education may be failing to take advantage of a unique health promotion opportunity.

Many of the behaviors correlated with the development of chronic disease are the same behaviors that are jeopardizing the present and future health of college students. One program option directed toward achieving health education and promotion initiatives for college students is through the implementation of wellness programs.

College Wellness Programs

In the 1970's the first college wellness program began to take shape under the direction of Dr. Bill Hettler, Director of the Student Health Service at the University of Wisconsin, Stevens Point (Ardell, 1985). Hettler's view of health education at the collegiate level was not entirely different from the principals of Halbert Dunn who initiated the wellness movement in the 1950's. Hettler believed wellness promotion should be implemented at the college level for the following reasons:

- increases students' retention in academic programs
- improves student chances for success post graduation: business seeks healthy employees
- improves behaviors established in adolescence and young adulthood that evidence suggests relate to causes of death at age 40 (Hettler, 1980).

The University of Wisconsin-Stevens Point program conceptualizes the six dimensions of wellness: social, intellectual, emotional, physical, spiritual and occupational into a proactive program where students are encouraged to become their own health managers (Hettler, 1984).

Through the Student Life Division, Dr. Hettler and his staff introduce students to the concept of wellness before they enter the University. Students complete a computerized questionnaire (Lifestyle Assessment Questionnaire) designed to help them identify the most frequent causes of death relevant to them over the next ten years. Results provide students with the opportunity to identify lifestyle factors

which may improve the quality of their lives. In addition, the Health Promotion Program offers video and audio tapes, self-care modules, handouts, wellness programs conducted in the University Center and in Residence Halls and optional courses that may be taken for required credit. Research of the Wisconsin-Stevens Point Wellness Program indicates that 23% of students report making lifestyle changes due to their participation in the program (Hettler, 1984).

A review of the literature reveals an abundance of research supporting worksite health promotion. Employee health has become a priority at all levels of the workforce. Businesses are realizing fewer days lost to employee illnesses, reduced costs in health benefits and improved productivity (Pelletier, 1996; Wilson, 1996). However, a search for research supporting health promotion courses and or programs at the college level indicates there is insufficient information concerning comprehensive programs.

Promotion and Intervention Strategies

Comprehensive Courses

Ball State University has a Physical Education Fitness/Wellness course that is required for all undergraduates. This course consists of a lecture one-hour each week on a specific wellness topic and two activity sessions per week. Students must enroll in one of several aerobic activities: fitness swimming, swimnastics, bicycling, jogging, walking, or rhythmic aerobics. Students are tested both before and after participation in these activities with respect to body composition, flexibility, abdominal curls, push ups, aerobic fitness and knowledge. At the end of the 16 week semester, post-testing indicated significant improvement in physical variables examined and significant improvement on the knowledge test (Robbins, et al., 1992).

At the University of Michigan McClaran and Sarris (1985) examined the effectiveness of implementing a 50-item questionnaire used to evaluate student

attitudes, behaviors and knowledge pre and post instruction in an undergraduate health and lifestyle course. They concluded that student behaviors showed significant positive changes in regards to reducing the use of salt, fats, oils, sugar, and alcohol. Students spent more time in vigorous exercise, and fewer students reported driving after drinking or riding with someone who has been drinking. After participating in the course students indicated the areas where there were no notable changes were the frequency of breast or testicular self-exams, weight perceptions, wearing seat belts, smoking, and use of contraceptives. McClaran and Sarris (1985) also report appreciable changes in health-related attitudes. However, there appeared to be no significant gain in knowledge among student participants, which may possibly be due to the questions used in the knowledge portion of their survey. Comments received at post evaluation from students were positive and supportive of the course. For example, many students felt that the course should be required for all students. This course was offered for one-hour credit and consisted of only six two-hour meetings throughout the semester. Administering some form of life-style assessment at the beginning of the course to students provides students with a baseline of their current health values, beliefs and knowledge. By having this information in the beginning of the course, the students found health information to be more relevant and useful.

The University of Oregon took a multifaceted approach in helping students enrolled in a college personal health course make positive health behavior changes. In this course, Cottrell, Carey, Tricker, and Zavela, (1988) emphasized individual responsibility and adoption of positive health behaviors by having students participate in a behavioral intervention project. The project stressed goal setting, self-monitoring, self-rewarding, contracting, and force field analysis (examining outside factors related to the behavior). In self-reported data, 88% of students participating reported some degree of success. Cottrell, et al. (1988) noted that this was not a closely controlled experimental study but a demonstration project that showed how a multifaceted approach to behavior change could be successfully used in a college health course.

Barbara McClanahan (1990) of Memphis State University investigated the influence of an activity-based wellness course and a cognitive-based wellness course on self-reported undergraduate lifestyle behaviors. Conclusions of McClanahan's investigation indicate improvements in test measures for both groups. However, results of the investigation indicate that students in the activity-based course had a higher degree of improvement for both physical and nonphysical measures of wellness than those students who were in the cognitive-based course. Indications from McClanahan's study support learning theories founded on student involvement.

A course developed at the University of North Carolina at Ashville, "Health Promotion and Wellness," included lectures, laboratory groups designed to explore and develop interpersonal relationships, aerobic exercise, a 30 minute "wellness visit" with a resident family physician and a health contract for behavior change (McClary, Pyeritz, Bruce, and Henshaw, 1992). In a two-year follow-up, a 56% return of 233 questionnaires indicated that 90% of the students reported lasting effects on their lives. The principal designers of the course were encouraged by the student's comments and capacity enrollments in a class that focuses on self-responsibility and self-control over one's health.

Michigan State University (Carlson, DeJong, Robison, and Heusner, 1994) reconstructed its general health course to include an expansion of quizzes on outside readings, a detailed student packet and supplementary handouts, blood lipid profiles and a computer printout of the student's physiologic assessment as well as a substance abuse assessment. Elements of the course, which did not change, were the number of lectures, an activity component, and a term project known as a lifestyle plan. Analysis of the revised course led to the conclusion that students improved knowledge, attitudes and in some cases behaviors. This study showed that an integrated approach to health education could help students move in the direction of changing behaviors. However, the main question remains: How long do these changes last?

A four-year follow-up to study the effectiveness of a revised wellness course at Gettysburg College examined the benefits of a small-seminar setting with a discussion-oriented curriculum. The discussion-oriented curriculum was designed to allow students to participate verbally in discussing the material by both expressing their knowledge and beliefs and by being able to intellectually defend what they were saying. Dr. Christine Lottes (1996) based the curriculum on the concepts of prevention and self-responsibility. When assessments were completed in the areas of learning and behavior change, students reported the same five areas of importance in 1991 and 1995: time management, fitness, goal setting, and nutrition and stress reduction. The results of this study indicate that there is long-term benefit gained by students who participate in behavior projects and discussions in health and wellness courses. One advantage students listed as having a positive influence on them was the incorporation of small group discussion in the course.

Behavior Contracting

One of the techniques most frequently used to promote behavior change in health education classes has been the use of behavior contracts. The use of a health behavior contract engages students in an activity in which they must scrutinize their behaviors, select one to improve and then set goals and objectives in contract format. In most cases the contract extends throughout the length of the course.

In general, the behavior contract is a multifaceted assignment. Students often complete some form of Health Risk Appraisal (HRA) in the beginning of the course to help them target problem areas (Turner, Korpita, Mohn, and Hill, 1993; Bensley, 1981). Once students identify problem areas, they are asked to select a single behavior that they would like to change during the course. The objective of the assignment is to assist them in making a permanent lifestyle change.

Behavior contracting requires the student to research the risks related to inappropriate behavior and the benefits of the appropriate behavior, collect information relating to their performance of the specified behavior, and evaluate the

information. The evaluation process is used to help students identify events that trigger their participation or reasons why they fail to participate in the behavior. The information is then used to write a contract outlining the steps they plan to follow to successfully improve the specified behavior (Petosa, 1984 & 1984-85; Bonaguro, 1979).

Consensus of the literature supports having students enter into a formal written contract (Wilson and Eisenhauer, 1992; Cotrell, et al, 1988; Petosa, 1984-1985; Bensley, 1982; Bonaguro, 1979). Contracts are designed to state both long and short-term goals and objectives to be met during the course of the contract. Self-reporting of progress or failure is the next step. This may be done through the use of daily or weekly journal entries. The last step in the process requires students to write a final analysis of their attempt. This is designed to help the student understand the results (Wilson and Eisenhauer, 1992; Cottrell, et al., 1988; Bensley, 1982). The major problems incurred with self-reporting are two fold. The first has to do with how the project is graded: is work handed in on a pre-arranged schedule or handed in all at one time and is the project graded on the level of successful behavior change or completion and analysis of the process? If students are not required to hand in periodic assessments, they may be inclined to fabricate information just before the project is due. Second, if success is graded, the project can be termed a failure because each student will report success whether achieved or not simply to get a good grade. None of the studies reviewed were graded on success, but on the ability of the student to follow the specific procedures outlined by the instructor and the student's ability to process the steps of making a behavior change and completion of the project.

The studies reviewed favor the use of contracting as a means of helping students change risk behaviors or adopt new behaviors (Carlson, et al., 1994; Bensley, 1981; Bonaguro, 1979). Most agree on the pitfalls of using behavior contacts: how to keep students motivated, how much monitoring to include during the process, how to

instill in students that process is as important as progress, and change is internally driven.

Results of using behavior contracts vary from study to study. This could be due to the internal structure of the course. Those courses, which required periodic reporting of progress, peer contact, or some additional form of reinforcement such as consultation with a health professional, exercise as part of the course, or fitness assessments indicated a slightly higher rate of improvement. The study conducted by McClary, Pyeritz, Bruce, and Henshaw (1992) used a multi-experience approach with a two-year follow-up. Their assessment found that 90% of the students' responses indicated the course had made lasting effects on students' lives. This makes it difficult to say whether or not the implementation of behavior contracts in a college health class brings about any lifelong behavior change. In a comparison of control groups to experimental groups in college courses where behavior contracts were used, the experimental groups had higher scores on post-tests than did the control groups (Carlson, et al., 1994; Benlsey, 1981; Bonaguro, 1979). However, the percentage of students successfully completing a behavior change project varied from study to study (Carlson, et al., 1994; Benlsey, 1981; Bonaguro, 1979).

Screening for Hypercholesterolemia

Screening college students for hypercholesterolemia is a relatively new concept in health education. With the guidelines from *Healthy People 2000*, *Healthy Campus 2000*, and the National Cholesterol Education Program (NCEP), recommendations have been made that all young adults age 20 be screened for hypercholesterolemia (Faigel, 1992).

Scheer, Loper, Wagner and Wise (1992) at the University of Nebraska designed a study with college students in a self-paced fitness course in which they had their cholesterol measured at the beginning of the year, received two information handouts dealing with cholesterol and received some lecture information. Results of

the study indicated that students whose total cholesterol was over 200 mg/dl made more exercise and dietary changes than those whose measures were under 200 mg/dl.

Nutrition Assessments

Nutrition analysis was used to help college women examine their dietary intake during a 15-week exercise and weight control class (Quinn & Jenkins, 1991). Quinn and Jenkins used the Dietary Intake Evaluation and Tabulation System (DIETS), a computer-assisted dietary analysis program designed to assist students in tracking and analyzing their dietary intake. The client record was compiled over a four day time period at the beginning of the course and again at the end of the course. Pre-class dietary assessments suggested that most students consumed a diet consistent with results from previous studies: protein (16%), fat (37%) and carbohydrates (46%). Following the dietary assessment, students were instructed in basic dietary needs and exercise. At the end of the 15-week period, diet assessments indicated no change in protein consumption. However, fat intake decreased from 37% to 34% while carbohydrate intake increased from 46% to 49%. In addition to the changes in the energy nutrients, students also made changes in their vitamin and mineral intake; sodium intake decreased from 2249 mg to 1971 mg, calcium increased by 16 %, and iron increased by 20%. Students realized an average weight loss of 2.7 kilograms.

This study demonstrates that by combining the use of computerized dietary analysis and exercise, students were able to access and apply information to help them improve their dietary and caloric intake.

Additional Interventions

Health Locus of Control (HLOC) is another index used to assist students in identifying their perception of control over their health. A study by Lonquist, Weiss, and Larsen (1992), examined the effectiveness of using measures of HLOC, social support factors (parents, peers, etc.) and self-assessment of health status on

participation of health protective behaviors. Results indicate that male college students' participation in health protective behaviors is mostly influenced by peer behaviors. However, female college students are most influenced by their personal health values along with peer behaviors (Lonnquist, et al., 1992). Social support networks for college students appear to play a major role in determining whether students participate in healthy or unhealthy behaviors. The benefit of using the HLOC questionnaire may be minimal in predicting who is and who is not healthy. However, there appears to be a relationship among persons who are internally motivated for seeking health information and acting on that information. There appears to be no such relationship for those who are externally motivated (Rotter, 1966).

The administration of health risk appraisals has been another avenue used to influence individuals in moving toward health positive behaviors. Risk appraisals may take the form of a full health risk appraisal (HRA), or they may be disease specific, such as heart disease, diabetes, cancer, alcohol or drug addiction, or sexually transmitted diseases. Turner, Korpita, Mohn & Hill, 1993, reported using an HRA in a sexual risk behaviors program at the University of South Carolina. Detailed discussion, prevention strategies, and values clarification and skill building were part of the program. Program results successfully demonstrated decreasing rates of coital activity and increased use of condoms. HRA's are not instruments to be used without instruction or counseling. However, they can be an effective means to identify areas of risk. For students, this may be one of the more effective tools to use in helping them identify problem areas.

Predisposing Factors

Attitudes, beliefs, and knowledge are generally referred to as predisposing factors by most health professionals. These factors are believed to be associated with an individual's behaviors (Green and Kreuter, p.154, 1991). Values, beliefs,

knowledge and feelings are dimensions of the affective and cognitive dimensions which affect behavior. In the process of choosing to make a behavior change Green and Kreuter (1991) state that health knowledge is probably necessary before individuals can make a conscious health decision (p.155). However, for an individual to make a decision to change behavior there has to be some form of motivation in addition to knowledge. This motivation can be presented in many forms; albeit more frequently than not, a major negative lifestyle event such as a heart attack, stroke, diagnosis of cancer or death of a close friend or family member becomes the motivation for an individual to seek a change of behavior. This form of motivation is generally lacking in the college-aged population. To put it simply, they have not lived long enough to acquire the type of life or health threatening experiences that lead to catastrophic illness nor do they generally acknowledge the risk of such behaviors. Green and Kreuter (1991) stress that when working with the college student population facts are essential in stressing the importance of adapting health enhancing behaviors, and that superficial coverage of the subject, moralizing and scare tactics turn students off (p.155). They suggest that knowledge combined with improved understanding of facts merge into one's beliefs, attitudes, and values, which in turn affects behavior.

Much of what we know today concerning attitudes and behavior is grounded in behavior and intervention theories. Schinke, Forgey, and Orlandi (1996), explain how educational interventions have been improved by combining aspects of several behavioral theories to improve interventions. For example, the health belief model, which focuses on an individual's belief in susceptibility and severity of consequences, is linked to the behavior theory of conceptual change. What this means is that if students are fully aware of the consequences of their behaviors they will make appropriate choices. Today, intervention strategies are no longer aimed at the mere distribution of facts but include opportunities for students to gain knowledge along with understanding how their attitudes, beliefs, and values help form their decisions. Essentials in program development should include knowledge concerning the

behavior, prevention efforts, and severity of not changing the behavior; understanding perceived risk and vulnerability; development of communication skills such as making refusals, negotiating appropriate terms, or delaying tactics; and understanding perceived norms in regards to high-risk behaviors (Schinke, et al., 1996).

Many of the changes in health promotion and intervention strategies grew out of the urgency of the AIDS epidemic in the 1980's. However, there are still problems which continue to arise in the dissemination of health information. For example, in reviewing AIDS-education programs, Kirby (1992) states that the average AIDS-education program lasts only 4 hours while Bandura (1992) suggests that the language in AIDS- education is often desexualized and euphemistic therefore difficult for people to understand the message fully. Another critic of AIDS-education cites that following a week-long intensive program at a university featuring public discussions, lectures, and the distribution of free condoms more than one-fourth of the students were unable to define safer sex (Chervin & Martinez, 1987). Although the afore mentioned criticisms are related to AIDS-education, these are problems faced in health education in general.

Predisposing Factor Interventions

A study done at the University of Arizona investigated the effectiveness of distributing self-care information to college students who used the student health service. The instrument measured student's attitudes toward information and behavioral involvement in health care and a measure of beliefs regarding control over one's health. Results revealed that those students who were given information and directions to read the self-care pamphlet scored higher on the Krantz Health Opinion Survey and the Multidimensional Health Locus of Control. These results imply that implementing a simple information intervention can influence health-related attitudes and beliefs can be influenced (Coon, McGhan, Bootman, & Larson, 1989).

Carlson, et al. (1994) compared student knowledge, attitudes, and behaviors before and after revisions were made to a university health promotion course. Their

findings indicate that both courses were effective in improving student knowledge, attitudes and behaviors. However, the revised course, which required more self-assessment activities, worked on improving awareness and skill development in making dietary choices relevant to cardio-vascular disease (CVD) and cancer and improving content in several additional areas, was shown to be more effective in addressing behavior change. At the completion of the revised course knowledge scores were higher. Attitude scores were higher in the areas of stress management and CVD, and significant behavioral differences were found regarding the area of CVD. Although there were positive behavior changes, the authors concluded that it would be more effective for college students to concentrate on making a specific commitment to a single behavior change than to attempt to change multiple behaviors.

Studies that examined student knowledge, attitudes and behaviors concerning cancer self-examination concluded that for both college aged men and women their lack of knowledge was the primary reason for not doing self-testicular exams for men and self-breast exams for women (Walker and Guyton, 1989; Ostwald and Rothenberger, 1985; Craun and Defenbacher, 1981). Although each of the studies reported significant knowledge changes, results concerning behavior change in doing self-examinations are varied. Craun and Defenbacher (1981) found that there was no change in breast self-examination but frequency of testicular self-examination increased. Walker and Guyton (1989) reported that three months post-course there were significant changes in student knowledge, attitudes and behavior in doing testicular self-exam.

In a study conducted by Karen Vail-Smith and Michael Felts (1993), the knowledge, attitudes and perceptions of risks of sunbathing were explored and related to college student behavior. Their findings indicate that although students have knowledge of the risk of sun exposure their attitude toward unprotected tanning and their perception that a tanned body is more attractive than an untanned body

outweighs their concern of developing skin cancer. In this study knowledge did not significantly affect behavior.

From the 1980's to the present an area that has seen an increase in evaluation of health knowledge, behaviors and attitudes has been in the area of HIV/AIDS interventions. One study examining the attitudes of male college students concerning their sexuality and condom use discovered that although there appeared to be no relationship between attitude and sexuality, there was a negative correlation between attitudes toward condom use and the intent to use them (Baffi, Schroeder, Redican, & McCluskey, 1989). Implications of this study point out that the primary use of condoms for this group was for contraception and not for prophylaxis. The authors indicate that by improving information disseminated to students on the use of condoms for both contraception and prophylaxis and including programs designed for women that condom use might be positively affected.

Another study concerning student sexual risk behaviors (Turner, et. al, 1996) examined the pre and post-intervention sexual behaviors of first-year college students. Three hundred forty-one students participated in a health education intervention seminar. Three months later those students who participated completed a post intervention survey along with 227 students who did not attend the seminar. Results of the survey denote that there was short-term reduction in sexual risk behaviors between those students who had the intervention and those who did not. This indicates that increased knowledge can have a positive effect concerning the decrease in participation of risk behaviors.

A third study on HIV/AIDS education evaluated the efficacy of a course at a university setting. The evaluation was designed to determine whether the students improved their general and scientific knowledge, and changed their opinions and behaviors. The results of the investigation showed a significant gain in general and scientific learning. However, the investigators were not able to find a significant change in opinions and behaviors due to the fact that many of the students in the experimental group and the control groups already had the desired opinions and

behaviors that the course was trying to promote (Schneider, Greenberg, Devanas, Sajja, Goodhart, & Burns, 1996). This could be interpreted as a move in a positive direction as far as information that students are receiving prior to their college experience. It should not be interpreted that courses on HIV/AIDS at the collegiate level should not be taught.

The last study to be addressed concerning HIV/AIDS education investigated whether student sexual behavior changed as their understanding of the subject improved. This study found that 29% of the students improved the safety of their sexual experiences, 12% actually increased risk behaviors and the remainder stayed the same (Walters, 1991). Results indicated that no prediction could be made concerning students' sexual behavior and their knowledge of AIDS.

To conclude, Barnes (1996) determined from a repeated measures study that those students who participated in a wellness course scored higher on post and post-post tests in knowledge, attitude, and behavior than students in the control group.

Summary

Health promotion and prevention courses and programs are recognized as an integral component in the nation's attempt to improving the health of all citizens. The implementation of intervention, promotion and prevention programs has proven successful in assisting individuals to change or modify behaviors which result in the decreased risk of future chronic disease.

Wellness programs emphasize the importance of addressing lifestyle issues which can negatively impact an individual's health. Stress management, smoking cessation, substance use/abuse, exercise, weight management and nutrition, and social and mental health are only some of the areas addressed.

As health educators, we are all striving to deliver a program that will positively impact the well being of our clients, whether they are in the corporate, public, or school sector. The problem that arises is whether the program is efficacious or not. Program effectiveness is evaluated in a variety of ways. In the corporate world, effectiveness is measured in reduced days of absenteeism and a decrease in medical costs or to put it mildly, dollars and cents. In education, effectiveness is measured in cognitive terms not behavioral terms. Although knowledge is an important factor it does not dictate behavior especially for students of college age. The question therefore is how can we successfully measure the efficacy of health and wellness courses when looking at behavioral outcomes?

Thus far, there has not been sufficient research examining the effectiveness of an integrated and comprehensive approach to teaching health and wellness. Indications from studies conducted at Ball State University (Robbins, et al., 1992), Memphis State (McClanahan, 1990), and North Carolina at Ashville (McClary, et.al, 1992) support using an integrated approach to teaching wellness.

Chapter III

Methodology

The purpose of this chapter is to present a description of the course, including subjects, course requirements and assignments, and to describe the procedures and instruments used in this research project.

Course Description

Health 200, Wellness Lifestyles is a general education requirement at Radford University in Radford, Virginia. The course was offered for 3 hours credit and introduced students to a variety of health topics during the lecture portion of the course and acquainted students with an array of fitness related activities in the activity portion of the course. Furthermore, as part of the course requirements, students are supposed to have a fasting blood lipid test and complete a physical fitness evaluation (Appendix A).

Subjects

Health 200 was offered to students with sophomore or above standing. Subjects participating in the study were those students who were enrolled in sections taught by the researcher in the spring semester of 1997. Sections included in the study were sections 5,6,13,14,15,16,17, &18. Total beginning enrollment for all sections was 126 students; however, only 110 students completed the course.

CourseComponents: Lecture

The course consisted of two hours lecture per week. At the beginning of the semester students were introduced to the general concept of the course and informed about the course content and assignment requirements by the lecture instructor.

Lecture material included: introduction to the concept and meaning of wellness; identifying and managing stress; concepts of fitness; nutrition and weight management; cardiovascular health; common chronic diseases; substance use and abuse; prevention of sexually transmitted disease and responsibility as a health consumer.

Lecture Assignments

The assignments required for the class were designed to help students identify behaviors that may develop into potential health problems, such as smoking and its relation to the potential of developing heart disease. In addition, assignments were aimed toward helping students in applying information that would enable them to make healthier lifestyle choices. For example, developing a meal plan for one day, which met nutritional guidelines, was directed toward making healthier food selections. Assignments encompassed the areas of exercise and fitness, cholesterol, nutrition, weight management, health history, coronary risk, stress management, substance use/abuse, and chronic diseases (Appendix A).

Assignments:

- Health Risk Appraisal - pre and post-test
This was an 80-question assessment located in the text: *Wellness Concepts and Applications* by Anspaugh, Hamrick, & Rosato (1997). The instrument included the following areas of assessment: physical, alcohol and drugs, nutrition, social wellness, spiritual wellness, emotional wellness, stress control, and intellectual wellness.
- Behavior Modification Project
The behavior modification project was a 10 week project in which students went through the steps of making a behavior change: assessing, goal setting, developing intervention strategies, and evaluating progress.
- Health Locus of Control Appraisal (HLOC)
This was a 17 question assessment to help students identify their HLOC.
- Coronary Heart Disease Risk Analysis
Assessment to predict future risk of developing heart disease.

- Fasting Blood Lipid Test
Assessment to identify present lipid profile of the student.
- Five Day Food Journal
Students used Mosby's NutriTrac to assess dietary consumption for a total of 5 days.
- One Day Menu Plan
Using Mosby's NutriTrac students were to develop a one-day nutritional plan with the correct amounts of fats, carbohydrates, and proteins represented.
- Food Frequency Form (extra credit assignment)
Diet Habit Survey, Department of Medicine at Oregon Health Sciences University
- Exit Survey (extra credit awarded)
- Three Unit Exams
- Comprehensive Final Exam

Course Components: Activity

The activity portion of the course was taught by graduate teaching assistants and offered students six physical activities: step aerobics, weight training (free weights), water aerobics, weight training (progressive resistance equipment machines), walk or jog, and campus safety (self-defense)/stress management training. The rotation schedule has students alternating between aerobic and anaerobic activities. Students participate in each of the activities a total of five times then rotate to the next activity. Students were given 3 excused absences during the semester. Should a student miss more than 3 activity classes the activity points were reduced by 5 points per additional class missed. On the last day of activity class students were given a written test.

Course Components: Assessments

There are two assessments that students are supposed to participate in. The first was a fasting blood lipid test. The fasting blood lipid test was done on campus in the University wellness lab. Phlebotomists from Radford Community Hospital were contracted to do the testing. Students paid for the cost of the test, which was \$15. If a student had a fasting blood lipid test within the previous six months those results

were accepted or a student could have the test done by his/her own health care provider. If either of these options were used, the student had to present a photocopy of the results to the instructor in order to receive credit. The instructor did not keep the results. Students choosing not to participate in the lipid testing were given an opportunity to earn credit by writing a three-page paper on the topic of cholesterol and blood lipids (directions in Appendix A).

Testing took place over a four-day period in January, 1997. Students signed up for appointments on a large sign-up sheet posted outside the wellness lab. Appointment times were between 6:30 A.M. and 9:00 A.M. Approximately two weeks following the testing students received their results in activity class. Each student's results came with a complete written explanation supplied by Radford Community Hospital, Carilion Health System. The explanation covered test results and implications. Lecture time was also dedicated to the interpretation and explanation of results. If a student needed further explanation, the instructor made individual appointments with them.

The second assessment, the physical fitness assessment, was also a scheduled test and took approximately thirty minutes per student. Students signed up for this test and were not allowed a second opportunity to have the testing done if they missed their appointment. Testing took place in the wellness lab and was conducted by graduate teaching assistants. Testing included height and weight measurements, blood pressure, body fat assessment by skin fold method, two strength measurements, two flexibility measurements, and a sub-maximal bicycle ergometer test. Following the testing procedure, each student had the results and implications explained by the graduated instructor who did the testing. Upon completion of the testing and explanation the graduate instructor gave the student an assignment to develop a personal exercise program addressing the components of fitness with specific attention directed toward the areas where the student had the greatest deficits. This assignment was called an exercise prescription (Appendix A). Students were given

20 points for having the fitness assessment done and completing the exercise prescription.

Procedures and Instruments

Students were instructed to keep all returned assignments in a folder that would be turned in at the end of the semester. Toward the end of the semester students were reminded to make sure their folders were complete and were given a final date for turning them in. The researcher collected folders at the end of the last lecture class. Each student was required to have his/her name and section number clearly printed on the outside of the folder. Once the researcher collected the folders, they were given identifying numbers from 1 to 126, organized and retained by the researcher for future reference. To insure confidentiality student names were removed from the folders and from their work.

Exit Survey

At the conclusion of the semester students were asked to complete an exit survey. The researcher developed the exit survey with three primary goals in mind. First, it was designed to examine student attitudes about health and health information; second, it was used to gather potentially valuable information concerning which lecture topics students believed to be important and beneficial; and third it supplied information that could be used in the development of the follow-up survey (Appendix B).

The attitudinal portion of the survey, comprised of questions 1 - 21, was developed following Edwards' criteria for attitude statements (1957, pp. 13-14).

- Avoid statements that refer to the past rather than to the present.
- Avoid statements that are factual or capable of being interpreted as factual.

- Avoid statements that may be interpreted in more than one way.
- Avoid statements that are irrelevant to the psychological object under consideration.
- Avoid statements that are likely to be endorsed by almost everyone or no one.
- Select statements that are believed to cover the entire range of the affective scale of interest.
- Keep the language of the statements simple, clear, and direct.
- Make statements should be short, rarely exceeding 20 words.
- Develop statements that contain only one complete thought.
- Avoid universals such as all, always, none, never.
- Use words such as only, just, merely with care and moderation in writing statements.
- Whenever possible, create statements in the form of simple sentences, rather than compound or complex sentences.
- Avoid the use of words that may not be understood.
- Avoid the use of double negatives.

Questions 22 - 39, the course benefits portion of the survey, were directed toward gathering information concerning whether students believed certain information, assignments, and assessments were of benefit to them. Questions 40 - 45, the exercise and fitness portion of the survey, concerned the 6 activities offered and the relevance of these activities in helping the student gain an appropriate introduction to each specific exercise activity. A third section on the survey was directed toward demographic information, age, gender, and class attendance.

The survey and an optical scan answer sheet were handed out by the course instructor on the next to the last class meeting. Students were reminded to use a No. 2 pencil in answering the questions on the answer sheet and told to return the survey and answer sheet at the following class meeting. Extra credit points were given to students who returned the survey. To insure confidentiality and that they would receive credit for completion of the survey students signed their name and section number on an attached signature form. The form was detached at the time the student handed in the survey. Answer sheets were computer scored and results recorded as percents (Results from the exit survey are in Table 4.12.)

Follow-up Survey

The follow-up survey was developed after a review of the exit survey. Components of the survey were discussed with committee members and suggestions were made to include a section on behavior and knowledge. It was also decided to retain the sections concerning attitude and course benefits and to include open-ended questions, which could contribute to helping the researcher determine which lecture topics, activities, or assessments, may need improving. (Appendix E)

The first section of the survey, questions 2 - 30, was designed to gather pre and post course information concerning the student's health behaviors. The behaviors addressed in the questionnaire were included because of their relevance to the material covered during the course of the semester.

The second part of the survey concerned student attitudes toward health and health information. With the use of the guidelines outlined by Edwards (1957, pp.13-14) concerning the development of questions for assessing attitude, a core of questions was selected from the Exit survey. The portion of the survey pertaining to attitude consisted of questions 51 through 69. Each question was scored by Likert's Method of Summated Ratings, which requires the respondent to answer a series of opinion questions. The scale used for recording answers asks to what extent the individual agrees or disagrees with the statement: strongly agree, agree, undecided, disagree, and strongly disagree (Zimbardo & Ebbesen, 1970).

Knowledge was the third area of assessment. Questions for assessing the retention of knowledge were selected from the comprehensive final exam that the students had taken at the end of the semester. There were a total of eighteen questions, two questions from each of nine major topics discussed throughout the year.

Table 3.0 delineates the dispersion of questions according to the specified behavior to each of the 3 categories being measured

Table 3.0
Matrix for Follow-up Survey Questions

| Topic | Questions Concerning Behavior | Questions Concerning Attitude | Questions Concerning Knowledge |
|---------------------|-------------------------------|-------------------------------|--------------------------------|
| Smoking | 3 & 4 | 59 | 73 & 80 |
| Alcohol | 5 & 6 | 60 & 63 | 74 & 87 |
| Stress Management | 7 & 8 | 61 | 71 & 72 |
| Nutrition | 9 - 20 | 65 & 66 | 75 & 83 |
| Weight Management | 21,22 & 23 | 65 | 76 & 78 |
| Physical Well Being | 24,25,26 & 27 | 62 & 64 | 77 & 82 |
| Cancer | 28 & 29 | 68 | 85 & 86 |
| Sexual Well Being | 30 & 31 | 67 | 79 |
| Health in General | | 52 - 58 | 81, 84 & 88 |

Questions 31 through 46 were included in the survey to help assess course topics and activities students thought were of benefit to them. Questions 47 through 50 addressed whether or not students thought certain of their health related behaviors were improved as a result of taking the Wellness Lifestyles course. The last page of the questionnaire asked three open-ended questions. The questions were: #89. *Was Health 200 of benefit to you? If yes, how was it of benefit? If no, can you explain why it was not of benefit?* # 90. *Have you shared information from Health 200 with friends and or family? Briefly give an example or two of what you shared. and # 91* *Would you recommend Health 200 to a friend? Why?*

Once the initial survey was constructed, individuals who had experience in health survey construction reviewed it for face validity. Answers to the questions were analyzed to ensure that each potential answer was mutually exclusive and that an individual would have only one selection that would be correct for him/her. In addition, answers for each question had to be in the correct rating order from positive behavior as answer **a**, to the most negative behavior as answer **d**.

Following the survey review, the survey was piloted with a small group of students (n = 5) who had completed the course prior to the fall of 1997. Comments were solicited as to the appropriateness of the directions and the clarity of the questions. Students were asked to write their comments on their survey. A reviewing

of their comments gave no indication that the directions and questions were either inappropriately worded or unclear. However, questions 23 - 26 had additional options added to the response choices and the word *benefit* was changed to *helpful* in reference to the activities section (questions 40 -45) (Pilot test results Appendix D).

Currency Survey:

A currency survey was administered at the end of the fall semester, 1997 to students enrolled in Health 200 - sections 5, 6, 7, 8, 9, 10, 11 & 12. The purpose of this survey was to obtain information concerning the benefits of the course from a separate group of students. Procedures for administration and scoring of the survey were the same as for the Exit Survey.

**Table 3.1
Calendar of Measures**

| Domain Surveyed | Exit Survey* April 1997 | Follow-up Survey* December 1997 | Currency Survey December 1997 |
|------------------------|--|--|--|
| Behavior | | * | * |
| Attitude | * | * | |
| Knowledge | | * | |
| Lecture Class | * | * | * |
| Activity Class | * | * | * |

* Exit and follow-up surveys were conducted with the same population.

Data Collection

Before the surveys could be mailed, applications had to be filed with and approved by the Institutional Review Board for the Review of Human Subjects Research at both Virginia Tech and Radford University (Appendix C). Following approval by both review boards data collection began.

Six months following the termination of the course those students who were enrolled and had completed the course were mailed a follow-up survey. Although in many post-test evaluations the post-test is administered at the end of the program to provide the evaluator with the minimum loss of cognitive learning (Kirsh & Wittrock, 1962), a delay in this post-test was done to assess whether or not students would report improvements in behaviors 6 months post-course and to what degree, if any, there would be a loss of cognitive learning. Addresses for all 110 students were obtained from the Radford University Registrars Office. Once addresses were obtained they were entered into a computer program and two copies of address labels were printed. Each student was mailed a follow-up survey with an electronic scan answer sheet, a consent form and a return addressed and stamped envelope (Appendix E). The total number of mailed surveys was 110.

To ensure that students would follow specific directions, directions were highlighted with a yellow marker. In addition, each electronic scan sheet was coded to match a master mailing list should follow-up mailings become necessary.

Approximately one week prior to the mailing, those students who were still enrolled at the University were sent an electronic mail message informing them that they would be sent a survey and asked that they please complete and return it. The e-mail message went out to 80 students (Appendix E). The remaining 30 students had either graduated or were no longer attending Radford University. The surveys were mailed three weeks before the end of the fall semester. To encourage the expedient return of the surveys, cash incentives were offered, one for \$20 and three for \$10. Return dates were provided in the cover letter (Appendix E). Upon receipt of the

signed consent forms the signature portion was removed and placed in a large envelope. A drawing was held on the cut-off date for early returns. The researcher telephoned the winners and the monetary awards were mailed.

At two weeks post mailing another electronic mail message was sent and 28 students who were still enrolled at the University and had not responded were telephoned. During the second week of the spring semester, which was approximately six weeks after the first mailing, a second mailing was done. However, due to the extremely poor response from those students who were no longer enrolled in classes, the second mailing was limited to only those students who were currently enrolled and resided in the Radford area. The cut-off date for surveys to be returned was February 1, 1998. Once the data were collected the matching mailing list was destroyed.

Design and Analysis

The study was a non-experimental post-test design. The intent of the study was to determine whether a general education health and wellness course could be effective in helping students improve health-related behaviors and whether attitude and knowledge affect behavior. Analysis was done using SAS (Statistical Analysis Systems) computer program for analyzing statistical data. The statistical information is displayed as descriptive statistics (mean, median, percent, and standard deviation) and includes a regression analysis.

Questions 2 through 30 were those questions concerning behavior (Appendix E). The behavior section was scored from 1 to 5 with 1 being the best possible score and 5 being the worst possible score. If a student received a score of 1 it meant he/she was practicing the best possible behavior in reference to that specific question. A number greater than a rating of 1 indicated that there was room to improve the specified behavior. For the nutrition section of the survey scoring was altered by collapsing categories to yield a score that did not penalize someone for eating better

than the recommended servings. For example, if a student reported consuming 5-6 servings of fruit it was scored as a 1 as was consuming 3-4 servings. This would then allow for recommended amounts or better in a category to be rated at 1. Scoring for the nutrition section follows: questions 8 & 14 (fruits), a = 5, b = 3, c, d, & e = 1; questions 9 & 15 (vegetables), a = 5, b = 4, c = 3, d & e = 1; questions 10 & 16 (grains), a = 5, b = 4, c = 3, d = 2, e = 1; questions 11 & 17 (meats), a & b = 1, c = 3, d & e = 5; questions 12 & 18 (dairy), a = 5, b = 4, c, d, & e = 1; questions 13 & 19 (sweets & fats), a = 1, b = 2, c = 3, d = 4, e = 5. Low score for this section would indicate positive health behaviors. Students had received ample instruction during the course to properly identify an appropriate serving size in each food category.

The attitude score was calculated by averaging the scores on questions 51 through 69. Questions 53, 56, 62, and 68 were negatively stated questions; therefore, scoring for those questions was reversed when the attitude score was calculated. Each question had a value from 1 to 5 with 1 being strongly disagree and 5 being strongly agree. A high averaged score of 5 would indicate very positive attitudes concerning health and health information while an averaged score of 1 would indicate very negative attitudes concerning health and health information.

Scores for the knowledge portion of the survey (questions 70 -87) were based on the percent of questions answered correctly out of 18 questions. A perfect score of 18 would be recorded as 100%, 17 as 94.44%, 16 as 88.89%, 15 as 83.33%, 14 as 77.78%, 13 as 72.22%, 12 as 66.67%, 11 as 61.11%, 10 as 55.56%, 9 as 50%, and 8 as 44.45%.

A paired t-test was conducted to measure the differences in knowledge scores between the end of the semester and the post-test. The level of significance was set with a *p* level of <.05. In addition a regression model was created to examine the relation of the independent variables (age, gender, knowledge, and attitude) to the dependent variable behavior. Again the *p* level was set at <.05.

Summary

The evaluation of Health 200 began in the spring of 1997. Those students enrolled in sections 5, 6, 13, 14, 15, 16, 17, and 18 were the subjects of the study. The total number of subjects was 110.

An exit survey was distributed at the end of the spring semester with the intent to begin an evaluation of student attitudes about health and health information and to assess the effectiveness of the course. In the fall of 1997, approximately 6 months after the completion of the course, all 110 students were mailed a follow-up survey. The follow-up survey was designed to examine three aspects: behavior, attitude, and knowledge. In addition the survey was designed to solicit information concerning which subject matter areas, activity classes, and assessments the students believed were of benefit to them and to offer them an opportunity to enter written comments concerning the benefits they received from taking the course or the lack there of.

Included in this chapter are an explicit description of the three components included in Health 200 and a list of course assignments. Also, the procedures and detailed explanation of the instruments used for this study are presented along with the research design and scoring procedures for each of the 3 components of the survey.

Chapter IV

Results and Discussion

The purpose of this study was multifaceted. The research questionnaire was designed to examine whether a general education wellness course positively influenced health behaviors of students. In addition to answering the three research questions the research questionnaire was designed to provide information that would assist the instructors of the course in making improvements to both course content and design.

Participant Completion

Of the 126 students enrolled in the course at the beginning of the 1997 spring semester, 110 students completed the course. Surveys were mailed to those 110 students, with one follow-up mailing. Responses were received from 45 students equaling a response rate of 41%. Of those responding, 15 were males and 30 were female. All students who participated in the study were sophomore or above in academic standing.

Interpretation of Scores

Behavior Scores

The survey addressed 14 basic behaviors pre and post course. Results of the behavior scores are located in Tables 4.0, 4.1, 4.2 and 4.3. Scores in Table 4.0 represent pre-course scores of those students who had no room to improve their behavior and those students who had room to improve their behavior.

Table 4.0

**Numbers and Percents for Pre-Course Behaviors
by Specific Behavior
Indicating Those Who Could Not Improve and Those With
Room for Improvement**

| **Behavior | Those Who Could Not Improve | | Those Who Could Improve | | Sample Size | |
|---------------------------|------------------------------------|------------------------|--------------------------------|------------------------|-----------------------|------------------------|
| | Number* (n) | Percent (%) | Number (n) | Percent (%) | Number (N) | Percent (%) |
| Smoking | 32 | 71.11 | 13 | 28.89 | 45 | 100 |
| Alcohol Consumption | 4 | 8.89 | 41 | 91.11 | 45 | 100 |
| Stress Management | 7 | 15.55 | 38 | 84.45 | 45 | 100 |
| Fruit Consumption | 3 | 6.66 | 42 | 93.34 | 45 | 100 |
| Vegetable Consumption | 1 | 2.22 | 44 | 97.78 | 45 | 100 |
| Grain, etc. Consumption | 1 | 2.22 | 44 | 97.78 | 45 | 100 |
| Meat Consumption | 29 | 64.44 | 16 | 35.56 | 45 | 100 |
| Dairy Consumption | 23 | 51.11 | 22 | 48.89 | 45 | 100 |
| Sweets & Fats Consumption | 5 | 11.11 | 40 | 88.89 | 45 | 100 |
| Label Reading | 8 | 17.78 | 37 | 82.22 | 45 | 100 |
| Aerobic Activity | 5 | 11.11 | 45 | 88.89 | 45 | 100 |
| Strength Training | 15 | 33.33 | 25 | 66.67 | 45 | 100 |
| Self-Exam | 4 | 8.89 | 41 | 91.11 | 45 | 100 |
| Condom Use | 23 | 51.11 | 22 | 48.89 | 45 | 100 |

* Represents number of students who either do not participate in the behavior or who were practicing the best behavior possible in the specified category.

** See Appendix E for Survey Questions

Table 4.1, represents scores for those students who had room to make improvements. This table indicates the number of students who improved and those students who stayed in the same behavior category.

Table 4.1
Numbers and Percents for Those With Room to Improve Behavior
by Specific Behavior

| *Behavior | Those With Room to Improve | | | | Sample Size | |
|---------------------------|--------------------------------|---------------------------------|-------------------------|--------------------------|------------------------------|-------------------------------|
| | Number Who Stayed the Same (n) | Percent Who Stayed the Same (%) | Number Who Improved (n) | Percent Who Improved (%) | Number Who Could Improve (N) | Percent Who Could Improve (%) |
| Smoking | 10 | 76.92 | 3 | 23.07 | 13 | 100 |
| Alcohol Consumption | 37 | 90.24 | 1 | 2.44 | 41 | 92.68 |
| Stress Management | 16 | 42.11 | 22 | 57.89 | 38 | 100 |
| Fruit Consumption | 31 | 73.81 | 11 | 26.19 | 42 | 100 |
| Vegetable Consumption | 32 | 72.73 | 11 | 25.00 | 44 | 97.73 |
| Grain, etc. Consumption | 29 | 65.91 | 12 | 27.27 | 44 | 93.18 |
| Meat Consumption | 12 | 75.00 | 3 | 18.75 | 16 | 93.75 |
| Dairy Consumption | 17 | 77.27 | 4 | 18.18 | 22 | 95.45 |
| Sweets & Fats Consumption | 23 | 57.50 | 16 | 40.00 | 40 | 97.50 |
| Label Reading | 19 | 51.35 | 17 | 45.95 | 37 | 97.30 |
| Aerobic Activity | 22 | 55.00 | 16 | 40.00 | 40 | 95.00 |
| Strength Training | 21 | 53.85 | 13 | 33.33 | 39 | 87.18 |
| Self-Exam | 23 | 56.10 | 18 | 43.90 | 41 | 100 |
| Condom Use | 16 | 72.73 | 5 | 22.73 | 22 | 95.46 |

* See Appendix E for Survey Questions

Table 4.2, represents the number of students who regressed in a particular behavior. It should be noted that not all students could regress. Only those students who were practicing a behavior above the lowest behavior category could regress in that behavior. For example, none of the students reported smoking more than 2 packs of cigarettes per day. Therefore, all students had the opportunity to regress to a more negative behavior. In addition, the number and percent of those students who regressed in a behavior is based on the number of students who could regress not necessarily the total number of students (45), except where applicable.

Table 4.2

Numbers and Percents for Those Whose Behavior Could Regress

| *Behavior | Those Who Could Regress | | Those Who Could Not Regress | | Those Who Regressed | |
|---------------------------|-------------------------|-------------|-----------------------------|-------------|---------------------|-------------|
| | Number (n) | Percent (%) | Number (n) | Percent (%) | Number (n) | Percent (%) |
| Smoking | 45 | 100.00 | 0 | 0 | 0 | 0 |
| Alcohol Consumption | 32 | 71.11 | 13 | 28.89 | 3 | 9.37 |
| Stress Management | 42 | 93.33 | 3 | 6.67 | 1 | 2.38 |
| Fruit Consumption | 28 | 62.22 | 17 | 37.78 | 2 | 7.14 |
| Vegetable Consumption | 35 | 77.78 | 10 | 22.22 | 1 | 2.85 |
| Grain, etc. Consumption | 44 | 97.78 | 1 | 2.22 | 3 | 6.82 |
| Meat Consumption | 45 | 100.00 | 0 | 0 | 4 | 9.30 |
| Dairy Consumption | 43 | 95.56 | 2 | 4.44 | 6 | 14.28 |
| Sweets & Fats Consumption | 45 | 100.00 | 0 | 0 | 1 | 2.22 |
| Label Reading | 34 | 75.56 | 11 | 24.44 | 1 | 2.94 |
| Aerobic Activity | 23 | 51.11 | 22 | 48.89 | 4 | 17.39 |
| Strength Training | 20 | 44.44 | 25 | 55.56 | 5 | 25.00 |
| Self-Exam | 19 | 42.22 | 26 | 57.78 | 0 | 0 |
| Condom Use | 42 | 93.33 | 3 | 6.67 | 3 | 7.14 |

* See Appendix E for Survey Questions

Table 4.3 represents a summary of those students who improved a behavior, those who stayed the same, and those who regressed in a specific behavior. In addition, the difference between improvement and regressed behavior is indicated.

Table 4.3
Summary of Behavior Changes

| *Behavior | Those Who Improved of Those Who Could | | Those Who Stayed the Same of Total Sample | | Those Who Regressed of Those Who Could | | Difference: Improved Minus Regressed | |
|--------------------------|---------------------------------------|-------------|---|-------------|--|-------------|--------------------------------------|-------------|
| | Number (n) | Percent (%) | Number (n) | Percent (%) | Number (n) | Percent (%) | Number (n) | Percent (%) |
| Smoking | 3 | 23.07 | 42 | 93.33 | 0 | 0 | 3 | 23.07 |
| Alcohol Consumption | 1 | 2.22 | 41 | 82.22 | 3 | 9.37 | -2 | -6.93 |
| Stress Management | 22 | 57.89 | 22 | 35.56 | 1 | 2.38 | 21 | 55.55 |
| Fruit Consumption | 11 | 26.19 | 32 | 68.89 | 2 | 7.14 | 9 | 19.05 |
| Vegetable Consumption | 11 | 25.00 | 33 | 71.11 | 1 | 2.85 | 10 | 22.15 |
| Grain, etc. Consumption | 12 | 27.27 | 30 | 64.44 | 3 | 6.82 | 9 | 20.45 |
| Meat Consumption | 3 | 18.75 | 38 | 26.67 | 4 | 9.30 | -1 | 9.45 |
| Dairy Consumption | 4 | 18.18 | 35 | 37.38 | 6 | 14.28 | 6 | 3.9 |
| Sweets & Fat Consumption | 16 | 40.00 | 28 | 51.11 | 1 | 2.22 | 15 | 37.78 |
| Label Reading | 17 | 45.95 | 27 | 42.22 | 1 | 2.94 | 16 | 43.01 |
| Aerobic Training | 16 | 40.00 | 25 | 48.89 | 4 | 17.39 | 12 | 22.61 |
| Strength Training | 13 | 33.33 | 27 | 46.67 | 5 | 25.00 | 8 | 8.33 |
| Self-Exam | 18 | 43.90 | 27 | 51.11 | 0 | 0 | 18 | 43.90 |
| Condom Use | 5 | 22.73 | 37 | 35.56 | 3 | 7.14 | 2 | 15.59 |

* See Appendix E for Survey Questions

Table 4.4 presents the mean, median and standard deviation for the 4 variables used in the study.

Table 4.4
Mean, Median and Standard Deviation
for
Age, Knowledge, Attitude, Behavior and Nutrition

| Topic | Mean | Median | Standard Deviation | N |
|--------------|-------------|---------------|---------------------------|----------|
| Age | 21.088 | 20.000 | 3.836 | 45 |
| Knowledge | .789 | .777 | .134 | 45 |
| Attitude | 4.245 | 4.368 | .462 | 43* |
| Behavior | 2.109 | 2.143 | .294 | 45 |
| Nutrition | 2.044 | 2.000 | .271 | 45 |

*Two outliers were removed from compiling the attitude score. Information from the remainder of the survey and from student folders indicates that these individuals scored the attitude section in reverse. Therefore the scores were omitted from the model.

Discussion of Behavior Results

Results of this portion of the study indicate that a required general education wellness course can positively affect students' behaviors. Two way frequency counts were run and descriptive statistics were used to examine self-reported information concerning pre and post course health related behaviors, attitudes, and knowledge.

The mean score for the behavior portion of the survey was 2.109. A low behavior score indicated positive health behaviors. The potential range of scores was from 1 to 5, with 1 being positive. A mean score of 2.109 indicates that students' are displaying more positive health behaviors than negative health behaviors.

Table 4.1 provided an overview of the number and percent of students who could improve a behavior to those who did improve. Students reported improvement in all behaviors with the largest improvements found in the areas of stress

management (57.89%), reading food labels (45.95%), practicing self-exams (43.90%), improving aerobic activity (40%), and decreasing consumption of fats and sweets (40%). It is worth noting that when examining the improvement in smoking behavior that the majority of the respondents were non-smokers (71.11%). This is especially interesting when there is increasing concern over the alarming number of youth and young adults who are reported as smokers (Waigandt, et al., 1997).

Another behavior that bears looking at is alcohol consumption. The number of students who were self-reported non-drinkers was very low (4). That meant that 41 students could improve their alcohol consumption. It should be acknowledged that 32% of those responding drank less than 2 drinks per day or per drinking occasion. Nevertheless, 23% reported consuming 2 - 4 drinks per day or per drinking occasion and 36% reported drinking 5 or more drinks per day or per drinking occasion. This reveals that there was no change in drinking behaviors. However, these results are in agreement with what has been reported nationally concerning the amount of alcohol being consumed and the drinking behaviors of college students (Douglas, et. al, 1997; Waigandt, et. al, 1997). In addition, this confirms that the concerns over the drinking behaviors of college students are well founded.

Table 4.2 described the number and percent of students who regressed in a specific behavior. The overall results indicate that there was a 7.63% change toward more negative behaviors. The two areas that reflected the largest percent change were in both exercise categories. (However, it should be noted that those two categories also had a relatively low number of students who could regress so when the percentages were calculated they were much higher.) This does not mean they have stopped training altogether, actually 57% of students reported doing some form of strength training in the post-course follow-up whereas only 45% were participating in strength training activities prior to taking Health 200. However, when considering exercise behaviors, college students will often give up or change their exercise routines fairly easily when they feel they are experiencing time limitations. Another contributing factor to changing exercise behavior could easily be convenience. Many

students live off campus and having to make a special effort to get to a facility that has weights could become a barrier to continuing the behavior. (Behavior results found in Appendix F.)

In addition, when comparing the percent of students whom reported improved behavior to those whose behavior regressed, the percent difference indicated an improvement of 22.71% for all behaviors. This is in agreement with what Hettler reported from research concerning the Wisconsin-Stevens Point Wellness Program. The results of that study reported a 23% improvement in student health behaviors (Hettler, 1985).

Discussion of Attitude Results

The second section of the survey concentrated on student attitudes. The mean attitude score was 4.245 indicating that students have very positive attitudes toward their health. Most students (89%) felt that in order to live a healthful life one must have appropriate and relevant health information and 82% either strongly agreed or agreed that Health 200 was of value to them. Although 89% of students indicated that they felt better when they exercised, only about half of them have regular exercise programs. However, there were two areas where attitude and improved behavior were closely correlated. Students improved behavior in the area of self-examination and 91% of the students either strongly agreed or agreed that they should do monthly self-examinations. The other area where there was a strong correlation between behavior and attitude was in stress management. There was a 57.89% increase in students improving their stress management skills, and 91% of them either strongly agreed or agreed that managing stress was important to their health.

Nevertheless, there always appears to be one domain where attitude and related behavior create concern. In this study that domain was alcohol consumption. Only 54% of the respondents strongly disagreed or disagreed that binge drinking was okay on the weekends. This means that 45% believe that it is okay to binge drink or have no feeling about it. These behavioral and attitude results mirror those that reflect national norms as reported in the *National College Health Risk Behavior*

Survey (Douglas, et al., 1997 & Waigandt, et al., 1997). To reiterate, there is a trend on the nation's college and university campuses where excessive alcohol consumption has become an accepted part of college life. However, what has not become accepted is that the excessive use of alcohol has given rise to increased incidence of unintentional injury and physical and sexual assault. Due to the reported levels of alcohol use and prevailing attitudes surrounding this behavior, it is evident that intervention strategies directed toward improving student attitudes need to be implemented. (Attitude results found in Appendix F.)

Discussion of Knowledge Results

The knowledge portion of the survey was included for two reasons: One to determine whether there was a relation between behavior, attitude, and knowledge and second to determine the level of cognition achieved.

In answer to the question, "Do students retain knowledge?" a paired t-test was done to compare mean scores of the answers to 18 questions that were used on the final exam and repeated in the follow-up study. The results are found in Table 4.5.

Table 4.5

**Paired t Test
for
Differences Between Knowledge Scores**

| | |
|--|------------|
| $\bar{D} = 9.97$ | $t = 5.80$ |
| $S_D = 11.4$ | $n = 44$ |
| CI = 95% CI on average change of score: (6.50075, 13.441) | $df = 43$ |

$P = .00000035$

Results of the paired t test indicate that on average students lost a significant amount of knowledge. This, however, was not unexpected. According to Kersh and Wittrock (1962) post-testing should be done soon after the program is completed to minimize loss of knowledge. Nevertheless, of greater concern to this researcher, was whether there were specific content areas students missed.

There were 5 questions on the knowledge portion of the survey that presented major problems for at least 10 or more students. The question numbers 76, 77, 80, 82, and 85 were of varying content. Most of the questions missed had multiple component answers which are generally more difficult to answer. Of particular interest were question numbers 76, 80, and 85. Students also had difficulty answering these three questions on the final exam. Question 76 concerned recommendations for beginning a fitness program. Question 80 required students to recall the four most important modifiable risk factors that contribute to heart disease. Question 85 asked them to identify the leading two lifestyle factors associated with cancer. In answering these questions most students who missed the question selected the answer that was the next closest to being correct. For additional information refer to tables 4.6 and 4.7. (Questions can be found in the follow-up survey in Appendix E.)

In reviewing student behavior, attitude and knowledge it is important to recognize that some type of knowledge is needed before an individual can move toward making decisions concerning their health. It is hoped that with gaining appropriate health related information that students will begin to choose to make positive lifestyle choices and understand how to identify and overcome barriers that may prevent them from making those choices. Nonetheless, as educators we need to remember an old saying, " you can lead a horse to water, but you can't make him drink". Students are much like the proverbial horse. Educators can help students gain knowledge but if they don't comprehend or acknowledge the implications of a negative behavior or understand perceived risk on a personal level they will not change their behavior.

Table 4.6
Final Exam and Follow-up Scores For Calculating
t Test Statistic

| Student I.D.# | Final Exam Score | Follow-up Score |
|----------------------|-------------------------|------------------------|
| 001 | 83.33 | 83.33 |
| 003 | 66.67 | 61.11 |
| 008 | 83.33 | 77.78 |
| 009 | 94.44 | 94.44 |
| 012 | 77.78 | 66.67 |
| 013 | 77.78 | 72.22 |
| 016 | 77.78 | 77.78 |
| 021 | 77.78 | 77.78 |
| 033 | 88.89 | 83.33 |
| 034 | 83.33 | 77.78 |
| 035 | 77.78 | 72.22 |
| 036 | 94.44 | 72.22 |
| 037 | 88.89 | 88.89 |
| 040 | 83.33 | 88.89 |
| 044 | 94.44 | 77.78 |
| 045 | 94.44 | 83.33 |
| 047 | 77.78 | 77.78 |
| 048 | 100 | 83.33 |
| 049 | 94.44 | 72.22 |
| 051 | 83.33 | 66.67 |
| 052 | 83.33 | 72.22 |
| 053 | 77.78 | 88.89 |
| 054 | 88.89 | 61.11 |
| 058 | 100 | 83.33 |
| 059 | 66.67 | 77.78 |
| 068 | 100 | 83.33 |
| 070 | 77.78 | 72.22 |
| 072 | 83.33 | 55.56 |
| 073 | 94.44 | 94.44 |
| 076 | 83.33 | 83.33 |
| 081 | 83.33 | 77.78 |
| 085 | 83.33 | 72.22 |
| 091 | 66.67 | 44.44 |
| 093 | 100 | 100 |
| 096 | 100 | 72.22 |
| 099 | 83.33 | 72.22 |
| 100 | 94.44 | 88.89 |
| 101 | 94.44 | 88.89 |
| 102 | 88.89 | 66.67 |
| 103 | 88.89 | 61.11 |
| 106 | 88.89 | 50.00 |
| 108 | 88.89 | 83.33 |
| 109 | 94.44 | 66.67 |
| 110 | 94.44 | 94.44 |

Table 4.7
Frequency Counts for Questions Missed by Individual Student

| I. D. # | Final Exam | Follow-up | Missed Final | Missed Follow-up | Questions Miss 2 x's |
|---------|----------------------------|--|--------------|------------------|----------------------|
| 001 | 70, 74, 82 | 77, 80, 82 | 3 | 3 | 1 |
| 003 | 75, 78, 80, 81, 83, 85, | 73, 75, 77, 80, 85, 86, 87 | 6 | 7 | 3 |
| 008 | 70, 74, 80, | 74, 77, 80, 85 | 3 | 4 | 2 |
| 009 | 83 | 77 | 1 | 1 | 0 |
| 012 | 71, 72, 74, 84 | 72, 76, 77, 80, 82, 87 | 4 | 6 | 1 |
| 013 | 77, 80, 82, 85 | 70, 74, 77, 85, 87, | 4 | 5 | 2 |
| 016 | 77, 83, 85, 87 | 75, 77, 82,, 87 | 4 | 4 | 2 |
| 021 | 70, 74, 80, 82 | 70, 73, 76, 82 | 4 | 4 | 2 |
| 025 | Did not complete knowledge | portion of the study | 0 | 0 | 0 |
| 033 | 74, 76 | 74, 77, 87 | 2 | 3 | 1 |
| 034 | 72, 80, 85 | 76, 77, 80, 82 | 3 | 4 | 2 |
| 035 | 74, 76, 83, 85 | 76, 77, 82, 85, 86 | 4 | 5 | 1 |
| 036 | 74 | 74, 76, 77, 80, 85 | 1 | 5 | 1 |
| 037 | 76, 80 | 77, 80 | 2 | 2 | 1 |
| 040 | 72, 77, 80 | 77, 80 | 3 | 2 | 2 |
| 044 | 85 | 71, 76, 77, 85 | 1 | 4 | 1 |
| 045 | 80 | 77, 80, 85 | 1 | 3 | 1 |
| 047 | 70, 76, 77, 82 | 70, 77, 80, 82 | 4 | 4 | 3 |
| 048 | 0 | 73, 77, 85 | 0 | 3 | 0 |
| 049 | 77 | 74, 75, 77, 80, 82 | 1 | 3 | 1 |
| 051 | 77, 82, 85 | 77, 79, 82, 84, 85, 87 | 1 | 6 | 3 |
| 052 | 82, 83, 85 | 71, 73, 74, 77, 85 | 3 | 5 | 1 |
| 053 | 75, 79, 80, 85 | 77, 80 | 4 | 2 | 1 |
| 054 | 77, 83 | 70, 75, 76, 77, 80, 83, 86 | 2 | 7 | 1 |
| 058 | 0 | 77, 80, 85 | 0 | 3 | 0 |
| 059 | 70, 72, 77, 82, 84, 85 | 70, 77, 80, 85 | 6 | 4 | 3 |
| 068 | 0 | 73, 74, 80 | 0 | 3 | 0 |
| 070 | 70, 74, 82, 85 | 75, 77, 80, 81, 82 | 4 | 5 | 1 |
| 072 | 73, 84, 85 | 77, 80, 81, 82, 84, 85, 86, 87 | 3 | 8 | 2 |
| 073 | 72 | 77 | 1 | 1 | 0 |
| 076 | 76, 80, 84 | 74, 77, 84 | 3 | 3 | 1 |
| 081 | 74, 77, 81 | 74, 77, 80, 81 | 3 | 4 | 3 |
| 085 | 76, 80, 87 | 76, 77, 80, 85, 87 | 3 | 5 | 3 |
| 091 | 72, 74, 77, 80, 82, 85 | 71, 73, 74, 75, 76, 77, 79, 82, 84, 85 | 6 | 10 | 4 |
| 093 | 0 | 0 | 0 | 0 | 0 |
| 096 | 0 | 72, 76, 77, 80, 85 | 0 | 5 | 0 |
| 099 | 79, 82, 85 | 76, 77, 80, 85, 87 | 3 | 5 | 1 |
| 100 | 82 | 77, 82 | 1 | 2 | 1 |
| 101 | 80 | 75, 77 | 1 | 2 | 2 |
| 102 | 80, 82 | 73, 76, 77, 78, 80, 82 | 2 | 6 | 0 |
| 103 | 70, 72 | 76, 77, 80, 81, 82, 85, 87 | 2 | 7 | 21 |
| 106 | 70, 74 | 73, 74, 76, 77, 80, 81, 82, 83, 85 | 2 | 9 | 0 |
| 108 | 80, 85 | 77, 80, 85 | 2 | 3 | 2 |
| 109 | 76 | 71, 73, 74, 76, 77, 80 | 1 | 6 | 1 |
| 110 | 80 | 77 | 1 | 1 | 0 |

Regression Model

A model was developed using techniques of modern regression analysis that would enable, to some extent, the prediction of behavior scores for students. If the major factor or factors that influence behavior can be determined, then the course, Health 200, can be revised to emphasize these factors, thereby helping to improve the health behavior of students.

First, a check for collinearity among regressors was done. Collinearity is a condition that exists when two or more regressors are linearly related. This means that several variables are essentially measuring the same characteristic (Milton & Arnold, 1995). When this occurs, variables must be dropped to eliminate this dependency. If a model has collinearity, the model is unstable. Consequently, changing the value of even one data point could yield completely different estimates for the regression coefficients. The statistics used to detect collinearity are the eigenvalues of the full model, the condition index, and the variance inflation factors (VIF). Ideally, all of these statistics should have a value of 1. The presence of a very small eigenvalue, a condition index larger than 100, or a variance inflation factor larger than 10, signals serious collinearity among regressors.

The study began by considering the full model. This model assumed the form:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

Where: y = behavior score (BSCORE)

X_1 = attitude score (ASCORE)

X_2 = knowledge score (KSCORE)

X_3 = age (AGE)

X_4 = gender (ANS1 or GENDER)

When this model was run to check for collinearity among the variables X_1 , X_2 , X_3 , and X_4 the smallest eigenvalue was .56954 with a condition index of 2.469. The largest VIF was 1.16638736. None of these values indicates the presence of

collinearity among regressors. Hence all regressors were considered as candidates for the final model.

Second, a screening process was performed in developing and selecting the model. There are several statistics that are used to accomplish the screening. These are Cp, mean squared error (MSE), and adjusted R^2 (R^2_{ADJ}). The Cp statistic is used to protect against leaving important variables out of the model, MSE is a measure of random or unexplained variability in the model, and R^2_{ADJ} measures the percentage of variation explained by the model. As protection against including unnecessary regressors in the model the latter statistic was "adjusted." Ideally, Cp should be small (at least less than the number of regressors in the model plus 1), MSE should be as small as possible, and R^2_{ADJ} should be as large as possible. A low Cp and a high R^2_{ADJ} were chosen because the low Cp ensures that we don't leave out important variables and the R^2_{ADJ} ensures that unimportant variables are not included in the model.

Four regressors ASCORE, KSCORE, AGE, and GENDER were included in the model under study. There were 15 possible models ($2^4 - 1$) that included at least one of these regressors. The Cp statistic, MSE, and R^2_{ADJ} were computed for each model. Table 4.8 gives the result of this screening for the best 4 models. It was decided that the first two models should be investigated further.

Table 4.8
Regression Model 1

| Variables in the Model | p + 1 (regression in model +1) | Cp | MSE | R^2_{ADJ} |
|-------------------------------|--|-----------|------------|-------------------------------|
| ASCORE | 2 | 0.41670 | .1131 | .1686 |
| ASCORE & KSCORE | 3 | 1.60829 | .1136 | .1652 |
| ASCORE & AGE | 3 | 2.19205 | .1153 | .1522 |
| ASCORE & GENDER | 3 | 2.30302 | .1157 | .1498 |

The third step in a regression study is to look for high leverage and high influence points among the models selected for further study. A high leverage point is a point in which the regressor values are unusual in the sense that at least one value is very different from the majority of the values of the other points. Such a point has the potential for controlling the regression. The "hat" diagonals (h_{ii}) are used to identify leverage points. A hat diagonal larger than $2k/n$ where k is the number of regressors in the model plus 1 and n is the sample size, signals the presence of a leverage point (Myers & Montgomery, 1995). Once a point is identified as a leverage point, it is checked for its influence on the model. A leverage point that is also influential spells trouble: a noninfluential leverage point reinforces the regression model and is desirable. The statistics DIFFIT and DFBETAS are used to check for influence. DIFFIT measures the impact of the leverage point on the fit of the model and DFBETAS measures its impact on the estimates of the coefficients $\beta_0, \beta_1, \beta_2, \beta_3,$ and β_4 . When the two candidate models were checked for leverage and influence points, the information given in Tables 4.8 and 4.9 was obtained. Each of the candidate models contained two leverage points. These points were not influential in either of the candidate models. If they had been influential, consideration would have been given to deleting these points from the study.

Table 4.9 presents results checking for leverage and influence points in a single variable model.

Table 4.9

Leverage Points for the Single Variable Model

Model: $BSCORE = \beta_0 + \beta_1 ASCORE$
 $p = \text{number of regressors} = 1$
 $k = 2$
 $n = 43$
 $2k/n = .093$

| h_{ii} | DIFFIT | DFBETA (intercept) | DFBETA (ASCORE) |
|----------|--------|-----------------------|--------------------|
| .1307 | .0240 | .0227 | -.0218 |
| .15550 | .0750 | .0718 | -.0691 |

Table 4.10 presents results checking for leverage and influence points in the two-variable model.

Table 4.10

Leverage Point for the Two-Variable Model

Model: $BSCORE = \beta_0 + \beta_1 ASCORE + \beta_2 KSCORE$
 $p = \text{number of regressors} = 2$
 $k = 3$
 $n = 42$
 $2k/n = .1429$

| h_{ii} | DIFIT | DFBETA | DFBETA | DFBETA |
|----------|--------|--------|--------|--------|
| .1590 | -.0312 | -.0184 | .0272 | -.0122 |
| .3366 | .4914 | .4530 | -.2718 | -.3565 |

The fourth step in a regression study is to choose the best model among the candidate models. Two criteria are used. First the model selected should have regressors that are statistically significant in the presence of the others. That is, each regressor should be important when added to the model that contains all of the others. In addition, the algebraic sign of the regressor coefficients should be logical from a subject matter point of view. Second, the model chosen should, if possible, have the smallest value of the PRESS statistic, a statistic that measures the predictive ability of the model.

Tables 4.11 and 4.12 display the results of a comparison of the two candidate models. As can be seen, the one variable model appears to be superior to the two variable model. It has a better value of the PRESS statistic (4.9204 versus 5.0991), all regressors are significant with $P < .005$, and its R^2_{ADJ} value is higher (.1746 versus .1652). At this point the simple linear regression model was selected as the final model.

Final Model
Simple Linear Regression

$$\text{BSCORE} = 3.904177 - .348706 \text{ ASCORE}$$

This model attributes 17.46% of the variability in behavior to differences in attitude. The negative sign in the model is appropriate. A high attitude score, which is indicative of a positive attitude, tends to lower the behavior score. This is appropriate since the behavior score was defined in such a way that a low score was indicative of positive health behavior.

Table 4.11

Evaluation of the One Variable Model

Model: $BSCORE = \beta_0 + \beta_1 ASCORE$
or
 $BSCORE = 3.904177 - .348706 ASCORE$

| Variable | T | P Value |
|-------------------------|----------|----------------|
| Intercept (β_0) | 8.241 | .0001* |
| ASCORE (β_1) | -3.143 | .0031* |

Press: 4.9204
R²_{ADJ}: .1746

***statistically significant
at P <.005**

Table 4.12

Evaluation of the Two-Variable Model

Model: $BSCORE = \beta_0 + \beta_1 ASCORE + \beta_2 KSCORE$
or
 $BSCORE = 3.651405 - .355997 ASCORE + .358254 KSCORE$

| Variable | T | P Value |
|-------------------------|----------|----------------|
| Intercept (β_0) | 6.668 | .0001* |
| ASCORE (β_1) | -3.126 | .0033* |
| KSCORE (β_2) | .916 | .3655 |

PRESS: 5.0991
R²_{ADJ}: .1652

***statistically significant
at P <.005**

The last step was to check the validity of the model assumptions underlying regression, specifically these are that the random errors were normally distributed with a mean of 0 and common variance. This assumption is checked visually by plotting the residuals versus the predicted values of the response. The plot produced should exhibit random scatter about zero and no patterns should be evident. (Plots are shown on pages 61 and 62.)

Discussion of Regression Results

The third portion of the analysis involved modern techniques of multiple regression analysis. After following the steps for constructing a regression model a simple linear regression model was chosen.

$$\text{BSCORE} = 3.904177 - .348706 \text{ ASCORE}$$

Through use of the regression model it could be concluded that 17.46% of the variability in behavior is attributed to differences in attitude. In essence, if individuals have a positive attitude about their health they are more inclined to participate in health promoting behaviors.

Calson, et al. (1994) and Walker & Guyton (1989) reported that by implementing strategies to improve student attitudes there is an increase in desired health related behaviors. Although the connection between attitude and behavior may not be clearly understood, investigations have shown that attitude is one of the predisposing factors that influences behavior (Green & Kreuter, 1991). Therefore, if in the teaching and learning process appropriate interventions can be implemented to improve attitude and increase knowledge, there should be a linear relation in improved behavior.

Figure 4.1 gives the residual plot for the model chosen. It exhibits no discernible pattern and points are randomly scattered about 0 as desired.

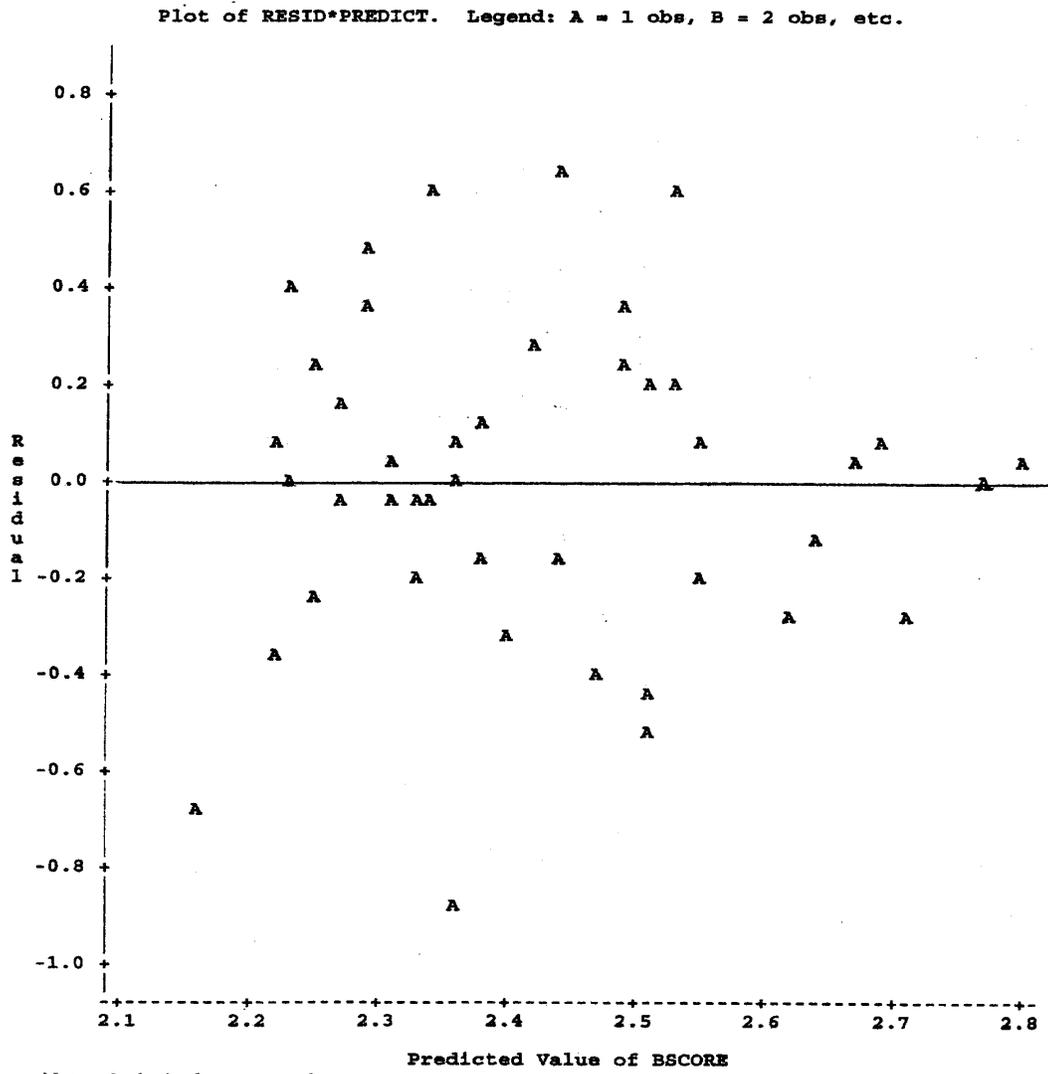


Figure 4.1

Currency Data

At the conclusion of the following semester a brief survey was conducted for the purpose of discovering what the current thoughts of students were concerning Health 200. The survey was an abbreviated version of questions that were on the exit survey and the follow-up survey and did not address either the knowledge or attitude components. (Appendix H)

The results from the currency survey were not included in the post-test evaluation. Instead they were used to compare student perceptions about the benefits of taking Health 200 between students enrolled in the course during different semesters. Results from the currency survey reveal a strong relation between what students reported on the preceding surveys in regards to the subject matter, activity classes, improved behaviors, and benefits of certain assessments with a few exceptions. Students reported less benefit from lecture information concerning stress management, and from the nutrition project. Although there were no clear indications why this discrepancy exists concerning stress management there are some indicators that may explain why students reported not benefiting from the nutrition project. The nutrition project required students to use a computer analysis program. There were numerous difficulties with computers not having adequate memory to do the project, problems with the compute labs, and disk failure (Each student had personal copies of the program on disk supplied by the book company.). The dissatisfaction was related to the project not toward lecture information concerning nutrition. Table 4.13 gives an overview of the percent of student responses from the three surveys.

In addition to what is reported in the table: 74% of the students reported the course material as very relevant; 96% reported gaining information that would help them improve their health; 83% believe the course should be kept as a general education requirement; and 90% of the students felt the class exceeded or met their expectations.

Indications from comparing information from the primary surveys and the currency survey verifies that students do benefit from taking Health 200.

Furthermore, they believe the information to be relevant and important in helping them make healthier lifestyle choices. In addition, information from the surveys has aided in the identification of deficiencies in the lecture material as well as the activity portion of the course.

Table 4.13
Comparisons of Exit Survey, Follow-up Survey, and
Currency Survey

| Survey Topics | Beneficial Exit Survey Spring 1997 | | Beneficial Follow-up Survey Fall 1997 | | Beneficial Currency Survey Fall 1997 | |
|-------------------------------|------------------------------------|-----|---------------------------------------|-----|--------------------------------------|-----|
| | Q # *E | % | Q # **F | % | Q # ***C | % |
| Lecture Information | | | | | | |
| Behavior change | E 32 | 73% | F 31 | 70% | C 4 | 71% |
| Stress Management | E 33 | 76% | F 32 | 84% | C 5 | 60% |
| Fitness | E 34 | 73% | F 34 | 91% | C 7 | 82% |
| Nutrition | E 35 | 82% | F 33 | 94% | C 6 | 85% |
| Chronic Disease | E 36 | 83% | F 35 | 80% | C 8 | 82% |
| STD's | E 37 | 82% | F 36 | 89% | C 9 | 89% |
| Substance Abuse | E 38 | 69% | F 37 | 77% | C 10 | 67% |
| Activities | | | | | | |
| Step Aerobics | E 40 | 75% | F 39 | 66% | C 12 | 70% |
| WT II | E 41 | 71% | F 43 | 84% | C 16 | 72% |
| Walk, Jog, Run | E 42 | 55% | F 40 | 41% | C 13 | 55% |
| Self-defense and Relax | E 43 | 90% | F 44 | 77% | C 17 | 70% |
| | Self-defense | | Self-defense | | Interval training/relax | |
| Water Aerobics | E 44 | 74% | F 41 | 73% | C 14 | 79% |
| Weight Training I | E 45 | 88% | F 42 | 89% | C 15 | 88% |
| Behavior | | | | | | |
| Improve Exercise Behaviors | | | F 47 | 50% | C 22 | 58% |
| Improve Eating Behaviors | | | F 48 | 64% | C 23 | 43% |
| Improve Other Risk Behaviors | | | F 49 | 68% | C 24 | 55% |
| Information to Improve Health | E 22 | 84% | F 69 | 88% | C 25 | 96% |
| Beneficial Assignments | | | | | | |
| Behavior Modification Project | E 23 | 57% | F 49 | 68% | | |
| Food Journal Project | E 25 | 64% | F 48 | 64% | C 25 | 46% |
| Activity Classes | E 26 | 74% | F 47 | 50% | | |
| Cholesterol Test | E 30 | 71% | F 46 | 84% | C 19 | 87% |
| Fitness Evaluation | E 27 | 80% | F 45 | 84% | C 18 | 79% |

* E = exit survey questions: ** F = follow-up questions: ***C = currency questions

Qualitative Information

Questions 31 - 50 asked students to respond to questions that inquired as to which components of the course they thought were of benefit to them. The following tables descriptively represent their answers.

Table 4.14

**Student Perceptions of Which
Lecture Topics Were Beneficial**

| Lecture Topics That Were of Benefit | Yes % | No % |
|---|------------------|-----------------|
| Information on Behavior Change | 70 | 30 |
| Information on Stress Management | 84 | 16 |
| Information on Nutrition and Weight Management | 94 | 6 |
| Information on Fitness and Exercise | 91 | 9 |
| Information on Chronic Diseases (heart disease, cancer, etc.) | 80 | 20 |
| Information on Sexually Transmitted Diseases | 89 | 11 |
| Information on Substance Use and Abuse | 77 | 23 |

Table 4.15
Student Responses to Which
Course Activities Were of Benefit

| Activities That Were of Benefit | Yes % | NO % |
|--|------------------|-----------------|
| Was the activity portion of class of benefit? | 86 | 14 |
| Was step aerobics of benefit? | 66 | 34 |
| Was walk, jog, run of benefit? | 41 | 59 |
| Was water aerobics of benefit? | 73 | 27 |
| Was weight training I of benefit? (free weights) | 89 | 11 |
| Was weight training II of benefit? (machine weights) | 84 | 16 |
| Was campus safety/self-defense of benefit? | 77 | 23 |
| Was having a physical fitness assessment of benefit? | 84 | 16 |
| Was having a cholesterol test of benefit? | 84 | 16 |

Students were also asked to respond to three open ended questions concerning the course. Each of these questions was asked to enable students to convey information that would either support what is being done in the course or supply answers that would help serve as a guide for the instructor in making changes to improve the course.

Student responses were very positive to many of the questions. The first question (#88) focused on how beneficial they felt the course was to them. Forty-three students said they benefited from the course and only 2 said they did not. Those students who said the class was beneficial said it raised their awareness, encouraged them regarding making behavior changes, influenced them to think more about what they are doing health wise, helped them quit smoking, and helped them understand how nutrition and exercise affect one's health. Those students who responded that the

course was not beneficial said the class was similar to their high school experience, and one student said he/she didn't learn anything new on the topics of drugs and alcohol.

Student Comments to Question 88

Was Health 200 of benefit to you? If yes, how was it of benefit? If no, can you explain why it was not of benefit?

"Health 200 was extremely helpful to me. I am an Interior Design major and with that comes a lot of stress and late nights. The class taught me ways that I could control my stress. I also am very pleased that the class touched on body fat and cholesterol. I am very glad that I had a full body exam."

"Yes, learned lots of useful information. I may not of changed some of my behaviors but I do think about the things I was taught. I took all the information to heart."

"The statistics and the breast cancer models were especially helpful. The self-defense and weight training were the most helpful parts of the lab section to me."

"The main benefit I gained from taking Health 200 was encouragement to change my negative behaviors. As a result, I have begun a regular swimming routine."

"I learned a great deal in Health 200 class. Lectures on things such as stress management, nutrition and exercise. Since taking this class I have improved certain behaviors, eating habits and exercise."

"Yes it was beneficial. I haven't taken immediate action to improve myself, but when I do the concepts that I learned will help."

"Health 200 was very beneficial to me. It helped me understand the importance of health as a young adult. There is also a history of heart problems in my family and it helped me understand it more fully."

"Yes it was especially the weight management and how to decipher food labels. I've also cut out a lot of fat in my diet and have started exercising more. The cholesterol test was very helpful and so were the health labs."

"I learned things I never knew. I enjoyed the labs too - they began to motivate me to exercise more."

"Yes, Health 200 was of a benefit to me. I learned how food consumption and exercise can affect one's health. I learned how to eat better; what types of food and how often; making the charts of what we ate and when during the semester made me more aware. I cope with my stress effectively and I rarely get sick. I learned a lot about health and my health. I know for a fact I'm healthier and I'm in better shape."

Remaining comments to question 88 can be found in Appendix G.

Question 89: Have you shared information from Health 200 with friends and or family? Briefly give an example or two of what you shared.

Again, students' comments were overwhelmingly positive with 41 students reporting that they have shared information from the class. Those who said they shared have shared information equally between their friends and their family.

Student Comments to Question 89

Have you shared information from Health 200 with friends and or family? Briefly give an example or two of what you shared.

"I've helped my mom start exercising and cope with her stress. Her high blood pressure has even gone down."

"I've talked my Mom into cooking healthier foods."

"Yes especially with my father, brother and sister we all have high blood pressure. I talk to them about reducing fat intake and especially the benefits of weight control and exercise."

"Yes, my father is a physician. He and I have spent some time, both during the course and after it, discussing various topics."

"Yes, I shared the information that I learned about smoking with my parents. And I am very happy to say that my parents have stopped smoking."

Remaining comments to question 89 can be found in Appendix G.

The final question asked students if they would recommend Health 200 to a friend. Again there was an overwhelming positive response. Most of the comments were directed toward the importance of having the information before health

problems begin and knowing how to prevent certain problems. Three students indicated they would not recommend the class. One of these students stated that he/she thought if a student wasn't ready for the information it wouldn't make an impact on their life. Another student felt the class required too much time and work with both the lecture and activity classes. The third student had no comment.

Student Comments to Question 90

Would you recommend Health 200 to a friend? Why?

"Yes, it is the most important info given in 4 years at RU that I have seen."

"Yes, I would. I think it is important to know how to maintain a healthy lifestyle. Before this class, I didn't realize that healthy was a lifestyle."

"Yes.... lots of information and insight on a lot of topics students should have the knowledge of. I do feel though that students should take the class as freshmen to start them off right."

"Yes. I sometimes feel as though it is wasted on 19 and 20 year olds. There was a lot of valuable info on how we can improve our chances at a long healthy life. And I want to be active until the day I die."

"Yes. There is so much to learn to improve everyone's life in this class."

"I would recommend this class and professor because what is taught and how it is taught is applicable to our lives."

"Very much so. There is so much to learn in that class, I feel everyone should take it."

Remaining comments to question 90 can be found in Appendix G.

Discussion of Qualitative Information

In general the information students' contributed was extremely positive and supportive of the structure and content of Health 200. The responses as to whether or not they benefited from each of the lecture topics were encouraging. However, there were two content areas that are cause for concern.

The first concerns the information on behavior change. Students generally view this area with dread because it requires them to examine their present behaviors and make a decision to make a positive behavior change. Although this is an integral part of the wellness class, many students are not ready to acknowledge that they are participating in negative behaviors much less need to change a behavior. Those students who respond positively to this element are usually students who have experienced negative effects of a specified behavior or have witnessed the effects of a specific negative behavior in a close friend or family member. Due to the lack of experience and the prominent belief that they are immortal, many students are not prepared to acknowledge the compounding effects of continuing a negative behavior.

The second domain of concern was the area addressing substance use and abuse. Reasons that students did not feel this area was of benefit could be one of the comments a student gave; he didn't learn anything new. This may be true, as many of them have been exposed to the information repeatedly. Another reason could be that there are only 3 lectures dedicated to the topic. This means that the use and abuse of over the counter medications, illegal drugs, smoking, and alcohol all have to be covered in just 3 class periods. This is hardly enough time to do more than basic introductions to the substance and discuss the general effects of short term and long term use.

Student responses to which activities were beneficial indicated that they felt that all but two activities were of benefit one being the activity walk, jog, run, and the other being step aerobics. Although there could be several reasons for students not feeling that they benefited from these activities, two come to the forefront: One, the instructor for step aerobics had no previous experience teaching this activity. Her inexperience could have created a difficult teaching situation for her, which in turn was less satisfactory for the students. Second, the instructor for walk, jog, run was experiencing extreme back problems which kept her in a brace for the entire semester. Due to this she was unable to participate in any part of the activity which makes it difficult to get and keep students motivated.

In response to having a blood lipid test done 84% felt it was beneficial. Prior to taking Health 200 most of the students had not had a lipid profile test. Several of the students were shocked after receiving their results to find out that at the age of 20 or 21 they were considered to be at two times the risk of developing heart disease. This prompted several students to inquire about familial lipid results and other familial risk factors associated with heart disease.

Eighty-four percent of the students responded that they felt having a physical fitness assessment was beneficial. This assessment was quite an eye opening experience for many of the students. Many were quite surprised to discover that their percent body fat places them in the overfat or obese category. Quite a few of them were shocked to find out at the completion of the testing that they were below average in most of the categories especially cardio-respiratory endurance and abdominal endurance.

In addition to the information from the Follow-up Survey there were three open-ended questions on the Currency Survey. The first asked if there should be additional topics included in Health 200 and whether there were topics that should have been covered in greater or less detail. The only topics which surfaced that several students thought should be included were information on mental health and birth control. In response to greater or less detail answers included every topic and there was no clear consensus. One student will say less on nutrition while another will say more needs to be covered concerning nutrition. What appears to be happening is that some students are very well informed in certain areas of health while others are sorely lacking in health information. This could be due to several factors: One, previous health education. Two, emphasis placed on health within the family. Three, personal interest. In as much as this seems to be a problem there is no clear solution at this point in addressing this issue in the educational environment of a large lecture class. However, two topics that students thought needed to be covered in greater detail were sexually transmitted diseases and substance use and abuse. This is certainly in line with what was indicated from the Follow-up Survey.

The second question was directed toward problems that students encountered throughout the semester. A number of students had difficulty meeting with the graduate student that was assigned to grade their papers. Several students reported difficulty with knowing when assignments were due and there were also several students who failed to understand the purpose and reason for doing the behavior project. However, the problem of greatest concern was the lecture tests. Several students commented that the lecture tests were too difficult for a general education course.

The third question asked for additional suggestions, comments, praises, etc. Most all of the comments were directed toward the positive teaching style of the lecture instructor and to the capabilities of most of the graduate students.

In general the information obtained from the Currency Survey supported what was found in both the Exit Survey and the Follow-up Survey. Even though students find some of the projects tedious and the tests difficult they report positive benefits from taking the course. In addition, comments from the students were very helpful in identifying areas where adjustments need to be made to improve the course.

In conclusion, the intent of this study was to evaluate the effectiveness of Health 200. The purpose of a wellness course is to engage students in the process of understanding the relation between the behaviors they exhibit and their health. The emphasis of a wellness course is directed toward understanding how one's behaviors along with genetic predisposition impacts on the individual's progression or regression along the health continuum. To this end personal responsibility becomes an important variable in making health promoting or health destroying decisions, the choice is made by the individual.

I believe that with the inclusion of a comprehensive wellness program and appropriate and inventive instructional techniques Radford University along with other colleges and universities can successfully implement health education and promotion programs that will help close the gap that exists between health knowledge and health behavior among the nation's college students.

Summary

The purpose of this study was to investigate the efficacy of Health 200, Wellness Lifestyles. The evaluation was directed toward student behaviors before and after the course, student attitudes toward health, post course knowledge retention and the relation between behavior, attitude, and knowledge. The investigation was also designed to provide information that would direct instructors toward lecture topics and activities that may need strengthened and improved.

Analysis of the data and results were discussed in this chapter. Two-way frequencies were used to statistically describe the data for behavior, attitude, and knowledge. In addition, a regression model was developed and used to analyze the association between attitude and behavior.

In addition currency information was gathered to aid in developing a more clear understanding of what student perceptions were of the course and to help identify areas that were causing concern. Currency information was found to support the concerns mentioned by students in the previous surveys.

Results of this study are in agreement with the results of similar studies that evaluated multiple component courses which indicate that a wellness course that combines multiple components can be effective in increasing knowledge, and improving health related attitudes and behaviors (Barnes, 1996; Carlson, et al., 1994; McClary, et al., 1992; Robbins, et al., 1992; McClanahan, 1990; Cottrell, et al., 1988; McClaran and Sarris, 1985)

Chapter V

Summary, Conclusions, and Recommendations

Summary

The purpose of this study was to investigate the effectiveness of a required comprehensive wellness course taught for general education credit at Radford University. Unlike many courses offered, Health 200 Wellness Lifestyles combined cognitive based learning experiences and activity based learning experiences with assessment activities. Although many schools offer health or wellness courses only a few have developed a comprehensive approach to teaching wellness.

Throughout history there has been a concern for the health and well being for the nations' college students (Sloane & Sloane, 1986; Oberteuffer, 1930). With the introduction of the *Recommended Standards and Practices for a College Health Program (Journal of American College Health, 1984)*, "*Healthy People 2000: National Health Promotion and Disease Prevention*" (Department of Human Services, 1990) and the *National College Health Risk Behavior Survey* (Douglas, et. al., 1997 & Waigandt, et al., 1997) health education and promotion programs have begun to gain support at the collegiate level.

A review of the literature suggested that a multifaceted approach to teaching wellness, one that provides cognitive, evaluative and activity components successfully helps students improve their attitudes and behaviors toward their health (Carlson, et al., 1994; Robbins, et al. 1992; McClary, et al., 1992; Cottrell, et al., 1988; McClaran & Sarris, 1985).

To date there has not been an abundance of research concerning the effectiveness of wellness classes that include the major components of the Radford

University program. In addition, most of the evaluations that have been reported were done at the end of the term (either semester or quarter) the course was taught. One exception, however was a study done by Pearman, Valois, Sargent, Saunders, Drane, and Macera (1997) on the affect of a required college health course on alumni. The study compared alumni who were required to take a health course to alumni at another institution who were not required to take a health course. The results revealed that those individuals who were required to take a health course were more likely to know their cholesterol levels, blood pressure, and recommended dietary fat intake than their counterparts. Also, they reported that the course positively influenced their attitudes toward exercise, eating, and smoking. The results of the study suggested that because the course was required alumni had more suitable health-related behaviors, attitudes, and knowledge than those who did not have a required course.

Conclusions

Based on the results of the study it appears that the following conclusions may be made.

Health 200, as measured in this study, is relatively effective in encouraging and helping students move toward the development of positive health behaviors. As reported six months following the completion of the course students made improvements in all areas of behavior surveyed except for the consumption of alcohol. Improvements ranged from 18.18% in the increased consumption of dairy products to 57.89% in improved ability to manage their stress.

Second, as indicated by the regression model developed for this study, 17.46% of the variability in behavior can be attributed to differences in attitudes. From the statistical analysis and from the responses students made to the open ended questions, it is evident that those students who have a positive attitude toward their health are

those students who are pursuing health promoting behaviors and are actively participating in making health conscious choices.

In regards to the third research question which was directed toward the retention of knowledge. The research indicated there is a significant loss of knowledge six months post-course. In reference to a grade scale this would equate to an average decrease of one letter grade. The mean score for the questions on the follow-up study were: final exam 86.489 and follow-up 78.9.

With respect to the qualitative information students indicated that they benefited from all aspects of the course. Their written comments revealed that the course has importance to nearly all students. They are willing and possibly even eager to share information with friends and family from virtually every topic covered in the course and they would recommend to class to friends.

Recommendations

Based on the completion of this study the following recommendations are presented.

Recommendations for Wellness Education

Concerning the course Health 200

It is recommended that:

1. Health 200 continues to be included as a required course in the undergraduate curriculum at Radford University. This is recommended in insure that a continued effort be made to encourage students to pursue positive lifestyle behaviors.
2. Health 200 continues to use a comprehensive format in teaching the concepts of lifelong wellness. This includes lecture, activity, blood lipid testing, and physical fitness testing.

3. Instruction should be enhanced in the specific area of substance use and abuse, specifically in the area of alcohol use and abuse. Recommendations would include dedicating a minimum of one additional class period to the unit on substance use and abuse. This would give the instructor an opportunity to cover the material in greater depth or to include having a guest lecturer.
4. Improve lecture design to include greater use of technology. For example incorporate PowerPoint and CD video clips into lecture.
5. The direction of the course should include a more in depth approach to improving student attitudes toward their health. Incorporate attitudinal questionnaires and or questions and allow time for class discussion. (This has not been done in the past due to class size. However, classes are smaller now and could be more easily incorporated.)
6. Activity sections should be reevaluated for their contribution to the overall program. Specifically, this reevaluation should to examine the effectiveness of the Walk, Jog, Run class and to replace it with a more effective activity. In place of Walk, Jog, Run an interval conditioning class or a circuit training class could be implemented in the class space that is available.
7. Post review notes on the Health 200 web page. This may assist students in studying for the tests.

Research Recommendations

It is evident that additional study needs to be done to ensure that in assessing wellness attitudes, knowledge, and behaviors for a comprehensive wellness course that the instrument is both valid and reliable. Therefore the following recommendation are offered:

1. Replication of this study with all students enrolled in Health 200.
2. A 3 to 4 year follow-up survey. This would be done before students graduate from the University. This should increase response rate.

3. The question concerning alcohol behavior should be developed into 2 separate questions. One that asks how many days per week student's drink and one concerning how much is consumed per drinking occasion.
4. The question concerning smoking behavior should be developed to include cigars and smokeless tobacco.
5. Move the knowledge section of the survey to the front. Due to the length of this survey it is possible that by the time students reached the point of the knowledge portion of the survey they were tired of it and just wanted to complete it.
6. Reevaluate the questions in the knowledge portion of the survey to be sure they are directed toward essential content of the course.
7. Shorten the survey and eliminate the section concerning course evaluation.
8. Activity instructors should be evaluated each semester. This evaluation should be two fold: first to assure program integrity and second, to offer constructive suggestions to help improve their teaching and professional development.

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Appendix A
Health 200 Wellness Lifestyles
Course Syllabus

Health 200 Wellness Lifestyles

Syllabus

Spring Semester 1997

Health 200 Wellness lifestyle

Instructors

| | | |
|-----------|------------------|--|
| TR 8 AM | Charlie Cosmato: | Peters Hall; phone 831-5308; Hrs TBA |
| TR 3:30PM | BB Strum: | B26 Peters Hall; phone 831-5480; Hrs TBA |
| TR 5PM | Bev Zeakes: | 113 Peters Hall; Phone 831-6572; Hrs TBA |
| MW 1PM | BB Strum: | Same as above |
| MW 4PM | Bev Zeakes | 113 Peters Hall Phone 831-6572; Hrs TBA |
| MW 5PM | Bev Zeakes | Same as above |

Text: *Wellness-concepts and Applications* 3e Anspaugh, Hamrick, Rosato

PURPOSE The purpose of this course is to assist the students in development and understanding personal responsibility required to acquire lifetime health behaviors that lead to a wellness lifestyle and to help the student become an educated health consumer.

ATTENDANCE POLICY

Lecture: None

Activity: The activity portion of the course requires your attendance. (see Grading Policy and Activity Syllabus)

Assessment: There are two assessment labs which require your participation.

1. Physical Fitness Assessment- You will sign up for this. **There will be no make-ups for missing this assessment without 24 hours notice and written permission from any of the instructors.** In case of an emergency or illness, you may call any of the above instructors or the wellness lab one-half(1/2)hour before your test time. Lab phone number:831-6218. On the night before your fitness test, do not consume alcoholic beverages. Do not drink caffeine, smoke or use tobacco products the day of your test and be sure to eat something nutritious at least one hour before testing.
2. Cholesterol Testing- This assessment requires a \$ 15 fee. Tickets for the total cholesterol Fractionation testing can be purchased in the RU bookstore. If you have had a cholesterol test done in the last year, you may turn in a copy of your results to your activity instructor at the time of the screening. Be sure your section number is on the copy.

If there is a medical reason for you not to have your cholesterol done, you will need to talk to your lecture instructor at the beginning of the semester. Due to the scheduling of hospital personal to do the testing there will be no make- up testing off campus. You will sign up for the test in your activity class. The cholesterol test is done following a 12 hour fast (Should and may drink water). **Tickets for testing are purchased prior to testing at the RU bookstore.** Should you choose not to have a cholesterol test, you may opt to do a minimum of 3 pages type written, double spaced paper on the topic of cholesterol and the effect on health. This paper will be due at the time Cholesterol Testing is being done-**NO Later.**

Grading Policy: Your grade in this course is based on **total** points.

Lecture Class: 390 points possible
(Lecture points reflect 65% of your grade.)

Unit tests: 60 point each

Final Exam: 135 point (Comprehensive)

Assignments: 40 points

Behavior Contracts: 25 points

All assignments will be handed in and handed back in your activity classes. All assignments must have your name and your section number if you want credit for the assignment. Absolutely no work will be accepted 30 minutes after your activity class is dismissed. All assignments are to be handed into your current activity instructor. All assignments re to be typed unless stated otherwise, if more than one page, staple the pages together.

Activity Class: Activity points reflect 30% of your grade. 175 points are possible

Attendance: Students receive 5 points for every activity class they attend. (Your attendance grade decreases by 4% each class missed). 130 points are possible.

Test: There is a scheduled activity final exam (45 points). This will be given on the last day of activity lab prior to exam week.

Lab Assignments: Labs reflect 5% of your grade. 30 points are possible.

Physical Fitness Assessment: 20 points

Cholesterol Assessment: 10 points

WELLNESS 200- ACTIVITY LAB SYLLABUS

Instructors

| | |
|-------------------------------------|------------------------------|
| Aerobic Dance Exercise- Ms. Shorter | ph. 831-5377 office B27 PH |
| Walk/Run/Jog-Ms.Leiter | ph. 831-5377 office B27 PH |
| Self Defense-Mr. Creighton | ph. 831-5377 office B27 PH |
| Weight Training I- Mr. Salley | ph. 831-5377 office B27 PH |
| Weight Training II- Ms. Tompkins | ph. 831-5377 office B27 PH |
| Aqua Fitness-Mrs.McDonald | ph. 831-5377 office B27 PH |
| Wellness Lab Phone | ph. 831-6218 Peters Hall 127 |

Purpose: To help the student implement a personal fitness program based on the health related components and principles of fitness.

Test: Same as lecture

Attendance Policy:

There are 5 classes in each of the 6 activities, 30 classes. You have three (3) cuts- ONLY 3 cuts, it makes no difference how you choose to use them

but you only get 3, not 3 in each class but 3. After 3 cuts each additional absence will decrease your grade by 5 points. Attendance points

possible:

130

***Note: If you know that need to miss a class contact your instructor for permission to make it up ahead of time without penalty to your grade.** For example: Your class is at 2pm on Thursday and you must leave town for a school related activity. Call your instructor and attend a Wednesday class or a Thursday am class.(s) at a later date without penalty. **Persons with injury and /or illness which may prohibit their participation need to inform the instructor so they can assigned to activity that is commensurate with their abilities.** Attention to detail is your responsibility.

Roll will be taken daily at 3 minutes past the start of class. If you enter class after your name has been called you are considered tardy and your daily attendance points are reduced by half (2 1/2 pts). If you enter class after the entire roll has been completed, you are considered absent. To check your time with the official class time, call 382-1681. Class at the Dedmon center are given 10 extra minutes to arrive. Do not use the bus as an excuse for late arrival.

- Test: There will be a final exam on the last Wednesday and Thursday of activity classes. Dates to be announced. Total points possible: 45.
- Total points: $130+45=175$ (30% of your grade)
- Equipment: Wear loose comfortable clothing or if in the pool a bathing suit. Loose comfortable clothing does not mean jeans. We strongly suggest appropriate and adequate footwear. This is an activity class. Students are expected to be dressed appropriately at all times, for all classes.
- Caution: If you have any medical condition that may affect your performance or attendance in this class you must notify your instructor "ASAP" due to the nature of some of the classes there may be special need to modify or substitute exercises.

Activity Rotation Schedule

This is the sequence for rotating from activity to activity, i.e. if in aerobics go next to weight training II. (PH refers to Peters Hall)

| | |
|---------------|--------------------------------------|
| Room 103 PH | Aqua Conditioning |
| Room B23 PH | Weight Training I |
| Room B24 PH | Aerobics |
| Dedmon Center | Weight Training II** |
| Room 134 PH | Walk, Run, Jog, and Circuit Training |
| Room 101 PH | Self Defense |

** Roll will be taken 10 minutes after the scheduled beginning class time. This is more than enough time to walk or ride the bus.

*** All students who commute to school from outside Radford/Fairlawn area are to see your lab instructor immediately following the first class.***

BEHAVIOR MODIFICATION PROJECT

For the next ten weeks you are to work on modifying a health behavior. You may choose to change a negative behavior; smoking, alcohol consumption, junk food consumption, biting your fingernails, etc., or you may choose to begin a new healthier behavior; exercising, eating breakfast, beginning a time management program, drinking 8 glasses of water a day, improving stress management, etc. Whatever problem you choose to work on, it must be wellness related and the intent is to improve your healthy/wellness.

To begin your project, check the time schedule for due dates. This will tell you when each phase of the project is due. All papers are handed in when you meet for your activity lab, due dates are for your activity class. If you will not be in class that day, **(MAKE SURE YOUR ASSIGNMENT IS.)** LATE WORK IS NOT ACCEPTED UNLESS PERMISSION HAS BEEN GIVEN DIRECTLY FROM YOUR LECTURE OR ACTIVITY INSTRUCTOR, PRIOR TO THE DUE DATE.

PROJECT PHASES

PHASE I: DEFINING BEHAVIOR, BASELINE DATA COLLECTION, AND WRITING THE CONTRACT- STEPS 1-8, PAGES 6-14 IN YOUR TEST WELL BOOKLET.

Defining the behavior. What are you going to work on?

Baseline Data Collection: For 5 days you need to collect information related to your behavior. You are trying to find out when, why, where, how often, circumstances related to your doing or not doing the behavior.

Example: Time management is the desired behavior. Day 1, time set aside for studying, friends came over and you chose to watch TV, go out to eat, drink a few beers, etc., the consequences were your failure to get your homework finished.

Data collection is a full report of when, why, where, how often (time), circumstances. You may also choose to record your feelings surrounding the behavior. What could the continuation of this behavior mean to you in the future: smoking-lung cancer; poor study habits-fail classes; consuming junk food-extra pounds of fat.

Data collection may be recorded in a chart or as a daily log. Be sure to include all the information you can to help you identify everything that relates to your participation or failure to participate in the desired change. This should also include a look at situations that may be related to the behavior you are trying to change. For example, many smokers find out that they smoke more when they drink, junk food junkies eat more when they stay up really late studying. This may indicate that those behaviors may need some modifying also.

Phase II:

Writing the Contract: Use the guide in TestWell page 13. Pay close attention to writing specific goals and objectives. The more specific you are the better chance of success. Plan rewards and/or punishments, but be realistic and be sure it is something you will honestly follow through with. You can cheat on this project all you like, but the only person you will be cheating is yourself. Your contract must address each of the steps in TestWell: 3,4,5,6,7, and 8. **PHASE I AND II ARE DUE AT THE SAME TIME, CHECK YOUR DUE DATE SCHEDULE.**

Phase III:

Steps 9 and 10. Journal entries: Each week you are to record your progress, failure, etc. This is not a report. This is a weekly analysis. No credit will be given for a report. In your analysis, tell what went right and how you plan to continue and improve or what went wrong and what you need to do to achieve success. Use the form on page 5. You will need to use this form for each weekly journal. You may copy the one given you or use the format and do it on a computer. Journal entries are the instrument for helping you keep on track, make changes, improve, etc. You may find out that your initial goal was unrealistic, now what? Explain changes and moderations in your journal entries.

PHASE III JOURNAL REPORT ENTRIES ARE DUE EVERY OTHER WEEK, TWO ARE HANDED IN AT A TIME. CHECK YOUR DUE DATE SCHEDULE.

Phase IV: Final Evaluation (2 pages, address following questions)

Did I persist long enough to experience the rewards associated with making my change?

Did I practice the change as often or as long as I originally planned?

Did I keep in mind where I started from and what improvements I made?

Have I considered exactly what my old behavior was costing me in terms of money, physical health, or emotional well-being?

Did I enlist support from significant others in my life and did they provide it?

Did I set realistic goals for myself?

Have I really been committed to my goals and making this change?

What do I do now? Can I make changes now and succeed?

What would I do differently?

How can I continue to be successful?

Be analytical in your paper. Do Not report.

This project is not graded on your success of making a behavior change. It is graded on how you process what occurs and what is required to change a lifestyle behavior. Many of you will not succeed, some of you will, and some of you will say you did. It's your life, your health, your choice.

Health Locus of Control

Locus of control is an important component of individual wellness. This activity will assist you in identifying your locus of control and its ability to affect your health. This rating scale is an adaptation of the Multidimensional Health Locus of Control Scales. The test is composed of three subscales:

1. The *Internal Health Locus of Control Scale (I)* measures whether you feel that you have control over your own health.
2. The *Powerful Others Health Locus of Control Scale (P)* measures whether you feel that powerful individuals, such as physicians or other health professionals, control your health.
3. The *Chance Health Locus of Control Scale (C)* measures whether you feel your health is due to luck, fate, or chance.

Directions: For each answer, choose a number from 1 to 5 that best describes your feelings.

| | | | |
|--|---|---|----------------------------|
| | 5 | = | Strongly agree |
| | 4 | = | Agree |
| | 3 | = | Neither agree nor disagree |
| | 2 | = | Disagree |
| | 1 | = | Strongly disagree |

Subscale 1: Internal Health Locus of Control

- _____ If I get sick, my behavior determines how soon I get well.
- _____ I am in control of my health.
- _____ When I get sick, I am to blame.
- _____ If I take care of myself, I can avoid illness.
- _____ If I take the right actions, I can stay healthy.
- _____ TOTAL

Subscale 2: Powerful Others Health Locus of Control

- _____ Having regular contact with my

- _____ physician is the best way for me to avoid illness.
- _____ Whenever I don't feel well, I should consult a medically trained professional.
- _____ My family has a lot to do with my becoming sick or staying healthy.
- _____ Health professionals control my health.
- _____ When I recover from an illness, it's usually because other people such as doctors, nurses, family, and friends, have been taking good care of me.
- _____ Regarding my health, I can only do what my doctor tells me to do.
- _____ TOTAL

Subscale 3: Chance Health Locus of Control

- _____ No matter what I do, if I am going to get sick, I will get sick.
- _____ Most things that affect my health happen to me accidentally.
- _____ Luck plays a big part in determining how soon I will recover from an illness.
- _____ My good health is largely a matter of good fortune.
- _____ No matter what I do, I am likely to get sick.
- _____ If it is meant to be, I will stay healthy.
- _____ TOTAL

To obtain your score for a subscale, add the numbers you chose.

1. A score of 23 to 30 on any subscale means you have a strong inclination toward that particular subscale. For example, a high C score indicates you hold strong beliefs that your health is a matter of chance.
2. A score of 15 to 22 means you are moderate on that particular subscale. For example, a moderate P score indicates you have moderate belief that your health is due to powerful others.
3. A score of 6 to 14 means you are low on that particular subscale. For example, a low I score means you generally do not believe that you control your own health.

*Anspaugh, Hamrick, & Rosato

Lifestyle Assessment Inventory

Directions: Wellness involves a variety of components that work together to build the total concept. Below are some questions concerning the different aspects of wellness. Using the scale, respond to each

question by circling the number that most closely corresponds with your feeling and lifestyle. Remember to complete the Lifestyle Assessment Inventory at the completion of the course to compare the results.

Physical Assessment

| | Yes/Always | Most of the Time | Sometime s | Rarely | No/Never |
|---|------------|---------------------|---------------|--------|----------|
| 1. I get at least 30 minutes of moderately intense physical activity most days of the week. | 10 | 7 | 5 | 3 | 1 |
| 2. When participating in physical activities, I include stretching and flexibility exercises. | 10 | 7 | 5 | 3 | 1 |
| 3. I include warm-up and cool-down periods when participating in vigorous activities. | 10 | 7 | 5 | 3 | 1 |
| 4. I engage in resistance-type exercises at least two times per week. | 10 | 7 | 5 | 3 | 1 |
| 5. My physical fitness level is excellent for my age. | 10 | 7 | 5 | 3 | 1 |
| 6. My body composition is appropriate for my gender (men, 10%-18% body fat; women, 18%-25%). | 10 | 7 | 5 | 3 | 1 |
| 7. I have appropriate medical check-ups regularly and am able to talk to my doctor and ask questions that concern me. | 10 | 7 | 5 | 3 | 1 |
| 8. I keep my immunizations up-to-date. | 10 | 7 | 5 | 3 | 1 |
| 9. I keep up with the medical history of close relatives. | 10 | 7 | 5 | 3 | 1 |
| 10. I keep records of the time, date, and results of medical tests. | 10 | 7 | 5 | 3 | 1 |

Physical assessment score _____

Physical Assessment

| | Yes/Always | Most of the Time | Sometime s | Rarely | No/Never |
|---|------------|---------------------|---------------|--------|----------|
| 1. I avoid smoking. | 10 | 7 | 5 | 3 | 1 |
| 2. I avoid using smokeless tobacco products. | 10 | 7 | 5 | 3 | 1 |
| 3. I avoid drinking alcohol or restrict my consumption to two drinks or | 10 | 7 | 5 | 3 | 1 |

| | | | | | | |
|-----|---|----|---|---|---|---|
| | less per day. | | | | | |
| 4. | I avoid drinking alcohol to the point of intoxication. | 10 | 7 | 5 | 3 | 1 |
| 5. | I do not drive when drinking alcoholic beverages or taking medicines that make me sleepy. | 10 | 7 | 5 | 3 | 1 |
| 6. | I avoid using mood-altering substances. | 10 | 7 | 5 | 3 | 1 |
| 7. | I follow directions when taking medications. | 10 | 7 | 5 | 3 | 1 |
| 8. | I thoroughly read labels before taking a nonprescription drug. | 10 | 7 | 5 | 3 | 1 |
| 9. | I ask about contraindications and side effects of prescription drugs before taking them. | 10 | 7 | 5 | 3 | 1 |
| 10. | I keep a record of drugs to which I am allergic in my wallet or purse. | 10 | 7 | 5 | 3 | 1 |

Alcohol and drugs assessment score _____

Nutritional Assessment

| | Yes/Always | Most of the Time | Sometime | Rarely | No/Never | |
|-----|---|------------------|----------|--------|----------|---|
| 1. | I eat at least 3 to 5 servings of vegetables and 2 to 4 servings of fruits each day. | 10 | 7 | 5 | 3 | 1 |
| 2. | My daily diet includes at least 6 to 11 servings from the bread, cereal, rice, and pasta food group. | 10 | 7 | 5 | 3 | 1 |
| 3. | I limit my daily intake of dairy products to 2 to 3 servings. | 10 | 7 | 5 | 3 | 1 |
| 4. | My daily intake of meats, eggs, and nuts is 2 to 3 servings. | 10 | 7 | 5 | 3 | 1 |
| 5. | I make a conscious effort to choose or prepare foods low in saturated fat. | 10 | 7 | 5 | 3 | 1 |
| 6. | When purchasing a food item, I read the labels to identify foods high in salt, hidden sugars, tropical oils, and saturated fat. | 10 | 7 | 5 | 3 | 1 |
| 7. | I avoid adding salt to my food without first tasting it. | 10 | 7 | 5 | 3 | 1 |
| 8. | I avoid eating unless I'm hungry. | 10 | 7 | 5 | 3 | 1 |
| 9. | I stop eating before feeling completely full. | 10 | 7 | 5 | 3 | 1 |
| 10. | I avoid binge eating. | 10 | 7 | 5 | 3 | 1 |

Nutritional assessment score _____

Social Wellness Assessment

| | Yes/Always | Most of the Time | Sometime | Rarely | No/Never |
|---|-------------------|-------------------------|-----------------|---------------|-----------------|
| 1. I have at least one person in whom I can confide. | 10 | 7 | 5 | 3 | 1 |
| 2. I have a good relationship with my family. | 10 | 7 | 5 | 3 | 1 |
| 3. I have friends at work or school with whom I gain support and talk with regularly. | 10 | 7 | 5 | 3 | 1 |
| 4. I am involved in school activities. | 10 | 7 | 5 | 3 | 1 |
| 5. I am involved in my community. | 10 | 7 | 5 | 3 | 1 |
| 6. I do something for fun and just for myself at least once a week. | 10 | 7 | 5 | 3 | 1 |
| 7. I am able to develop close, intimate relationships. | 10 | 7 | 5 | 3 | 1 |
| 8. I engage in activities that contribute to the environment. | 10 | 7 | 5 | 3 | 1 |
| 9. I am interested in the views, opinions, activities, and accomplishments of others. | 10 | 7 | 5 | 3 | 1 |
| 10. I provide social support for others. | 10 | 7 | 5 | 3 | 1 |

Social wellness assessment score _____

Spiritual Wellness Assessment

| | Yes/Always | Most of the Time | Sometime | Rarely | No/Never |
|--|-------------------|-------------------------|-----------------|---------------|-----------------|
| 1. I know what my values and beliefs are. | 10 | 7 | 5 | 3 | 1 |
| 2. I live by my convictions. | 10 | 7 | 5 | 3 | 1 |
| 3. My life has meaning and direction. | 10 | 7 | 5 | 3 | 1 |
| 4. I derive strength from my spiritual life daily. | 10 | 7 | 5 | 3 | 1 |
| 5. I have life goals that I strive to achieve every day. | 10 | 7 | 5 | 3 | 1 |
| 6. I view life as a learning experience and look forward to the future. | 10 | 7 | 5 | 3 | 1 |
| 7. I have a sense of peace about my life. | 10 | 7 | 5 | 3 | 1 |
| 8. I am tolerant of the values and beliefs of others. | 10 | 7 | 5 | 3 | 1 |
| 9. I am satisfied with the degree that my campus activities are consistent with my values. | 10 | 7 | 5 | 3 | 1 |
| 10. Personal reflection is an important part of my life. | 10 | 7 | 5 | 3 | 1 |

Spiritual wellness assessment score _____

Emotional Wellness Assessment

| | Yes/Always | Most of the Time | Sometime | Rarely | No/Never |
|--|-------------------|-----------------------------|-----------------|---------------|-----------------|
| 1. I feel positive about myself and my life. | 10 | 7 | 5 | 3 | 1 |
| 2. I am able to be the person I choose to be. | 10 | 7 | 5 | 3 | 1 |
| 3. I am satisfied that I am performing to the best of my ability. | 10 | 7 | 5 | 3 | 1 |
| 4. I can cope with life's ups and downs effectively and in a healthy manner. | 10 | 7 | 5 | 3 | 1 |
| 5. I am nonjudgmental in my approach to others. | 10 | 7 | 5 | 3 | 1 |
| 6. I feel there is an appropriate amount of excitement in my life. | 10 | 7 | 5 | 3 | 1 |
| 7. When I make mistakes, I learn from them. | 10 | 7 | 5 | 3 | 1 |
| 8. I can say "no" without feeling guilty. | 10 | 7 | 5 | 3 | 1 |
| 9. I find it easy to laugh. | 10 | 7 | 5 | 3 | 1 |
| 10. I avoid blaming others for my failures or problems. | 10 | 7 | 5 | 3 | 1 |

Emotional wellness assessment score _____

Stress Control Assessment

| | Yes/Always | Most of the Time | Sometime | Rarely | No/Never |
|--|-------------------|-----------------------------|-----------------|---------------|-----------------|
| 1. I am easily distracted. | 10 | 7 | 5 | 3 | 1 |
| 2. I tend to be nervous and impatient. | 10 | 7 | 5 | 3 | 1 |
| 3. I prepare ahead of time for events or situations that cause stress. | 10 | 7 | 5 | 3 | 1 |
| 4. I schedule enough time to accomplish what I need to do. | 10 | 7 | 5 | 3 | 1 |
| 5. I set realistic goals for myself. | 10 | 7 | 5 | 3 | 1 |
| 6. I can express my feelings of anger. | 10 | 7 | 5 | 3 | 1 |
| 7. I avoid putting off important tasks to the last minute. | 10 | 7 | 5 | 3 | 1 |
| 8. I participate in activities that provide relief from stress. | 10 | 7 | 5 | 3 | 1 |
| 9. When working under pressure, I stay calm and patient. | 10 | 7 | 5 | 3 | 1 |
| 10. I can make decisions with a minimum of stress and worry. | 10 | 7 | 5 | 3 | 1 |

Stress control assessment score _____

Intellectual Wellness Assessment

| | Yes/Always | Most of the Time | Sometimes | Rarely | No/Never |
|--|------------|------------------|-----------|--------|----------|
| 1. I believe my education is preparing me for what I would like to accomplish in life. | 10 | 7 | 5 | 3 | 1 |
| 2. I am interested in learning just for the sake of learning. | 10 | 7 | 5 | 3 | 1 |
| 3. I like to be aware of current social and political issues. | 10 | 7 | 5 | 3 | 1 |
| 4. I have interests other than those directly related to my vocation. | 10 | 7 | 5 | 3 | 1 |
| 5. I am able to apply what I know to real-life situations. | 10 | 7 | 5 | 3 | 1 |
| 6. I am interested in the viewpoint of others, even if it is very different from my own. | 10 | 7 | 5 | 3 | 1 |
| 7. I seek advice when I am uncertain or uncomfortable with a recommended health or medical treatment. | 10 | 7 | 5 | 3 | 1 |
| 8. I ask about the risks and benefits of a medical test before its use. | 10 | 7 | 5 | 3 | 1 |
| 9. When seeking medical care, I plan ahead how to describe my problem and what questions I should ask. | 10 | 7 | 5 | 3 | 1 |
| 10. I keep abreast of the latest trends and information regarding health matters. | 10 | 7 | 5 | 3 | 1 |

Intellectual wellness assessment score _____

Wellness Assessment Summary

Transfer the total score for each section to the spaces below. Add the scores and divide by eight to determine your average wellness score.

| | |
|---------------------------------------|-------|
| Physical Assessment..... | _____ |
| Alcohol and Drugs Assessment..... | _____ |
| Nutritional Assessment..... | _____ |
| Social Wellness Assessment..... | _____ |
| Spiritual Wellness Assessment..... | _____ |
| Emotional Wellness Assessment..... | _____ |
| Stress Control Assessment..... | _____ |
| Intellectual Wellness Assessment..... | _____ |
| TOTAL | _____ |
| Average Wellness Score | _____ |
| (Divide total score by 8) | |

90-100—Excellent. You are engaging in behaviors and attitudes that can significantly contribute to a healthy lifestyle and a higher quality of life. If you scored in this range, you are an example to many.

75-89—Good. You engage in many health-promoting attitudes and behaviors that should contribute to good health and a more satisfying quality of life. However, there are some areas that could use some upgrading to provide optimal benefits. If you are at this level, you are showing how much you care about yourself and your life.

65-74—Average. You are typical of the average American who tends to act without really considering the consequences of your behaviors. Now is the time to consider your lifestyle and what ramifications it is having on you now and in the future. Maybe there are some positive actions that you can consider taking to improve your quality of life.

45-73—Below average. Perhaps you lack current information about behaviors and attitudes that can enhance your health and

quality of life. Now is the time to begin to learn about positive changes that can improve your life.

Less than 44—Needs improvement. It's good that you are concerned enough about your health to take this test, but indications are that your behaviors and attitudes may be having detrimental effects on your health. You can easily begin to take action now to improve your prospects for the future.

*Anspaugh, Hamrick, & Rosato

THE DIET HABIT SURVEY

(A Self-Scoring Quiz to Determine Your Need for Change)

This quiz will help you evaluate your current eating habits and compare them with the goals of the New American Diet. By taking this quiz now you will get some idea of what you need to do in order to achieve this way of eating. And by taking this same quiz at various times later on, you will be able to gauge your progress. Most of you, eating typical Western world foods, will not score particularly well. That is to be expected. This quiz will help you identify those areas for change. Do not expect to change all of your eating habits overnight. Slow, steady change is the path to permanent change.

Directions: For each question, circle the numbers to the left of the choices that best describe your eating habits during the past month. Put that number in the blank space labeled "score" after each question. If you checked more than one choice for a question, put the average of the circled choices in the blank space (unless otherwise indicated). For example, with respect to question 5 under "Meat, Fish, and Poultry," if you checked bacon, sausage, etc. and also checked turkey ham, your score is: $1 + 3 = 4$ divided by $2 = 2$.

Compare your scores with goal scores at the end of the questionnaire.

Developed by the Lipid-Atherosclerosis Nutrition Staff
Section of Clinical Nutrition and Lipid Metabolism
Department of Medicine
The Oregon Health Sciences University - L465
Portland, Oregon 97201-3098

MEAT, FISH AND POULTRY

For each question, circle as many numbers as apply and average them to get your score.

1. Which type of ground beef do you usually eat?
- 1 Regular hamburger (30% fat)
 - 2 Lean ground beef (25% fat)
 - 3 Extra lean/ground chuck (20% fat)
 - 4 Super lean/ground round (15% fat)
 - 5 Ground sirloin (10% fat) or eat no ground beef
- Score_____
2. Which best describes your typical lunch?
- 1 Cheeseburger, typical cheeses, egg dishes (egg salad, quiche, etc.)
 - 2 Sandwiches (lunch meat, hot dog, hamburger, fried fish, etc.) or entree of meat or chicken (plain or fried)
 - 3 Tuna sandwich, fish entree (not fried), entree with small bits of chicken or meat in a soup or casserole
 - 4 Peanut butter sandwich, tuna sandwich with fat-free mayonnaise
 - 5 Salad, yogurt, cottage cheese, vegetarian dishes (without high-fat cheeses or egg yolk)
- Score_____
3. Circle all of the choices that reflect the entree at your main meal.
- 1 Cheese (Cheddar, Jack, etc.), eggs, liver, heart or brains 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), veal, venison, or elk once a week or more
 - 4 Chicken, turkey, rabbit, crab, lobster or shrimp twice a week or more
 - 5 Fish, scallops, oysters, clams, or meatless dishes containing no egg yolk or high fat cheese twice a week or more
- 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:
- | | | | |
|--------------------------------|-----------|-------------------------------|-----------|
| <i>4 strips bacon</i> | = 1 oz. | <i>1 chicken thigh</i> | = 2-3 oz. |
| <i>1 small burger patty</i> | = 3-4 oz. | <i>½ chicken breast</i> | = 3 oz. |
| <i>Meat in most sandwiches</i> | = 2-3 oz. | <i>1 average T-bone steak</i> | = 8 oz. |
| <i>1 slice cheese</i> | = 1 oz. | <i>1-inch cube cheese</i> | = 1 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 Not more than 1 ounce of cheese, or 3 ounces of red meat, poultry, shrimp, crab, or lobster, or not more than 6 ounces of fish, clams, oysters, scallops a day
- Score_____
5. Which of these have you eaten in the past month?
- 1 Bacon, sausage, bologna and other lunch meats, pepperoni, beef or pork wieners
 - 2 Canadian bacon, turkey wieners
 - 3 Turkey ham and other poultry lunch meats
 - 4 Soy products (breakfast links)
 - 5 None
- Score_____

TOTAL SCORE (MEAT, FISH AND POULTRY)_____

DAIRY PRODUCTS AND EGGS

For each question, circle as many numbers as apply and average them to get your score.

6. Which kind of milk do you usually use for drinking or cooking?
1 Whole milk
2 Two percent milk
4 One percent milk, buttermilk
5 Skim milk, nonfat dry milk or none
Score_____
7. Which toppings do you use?
1 Sour cream (real or imitation including IMO), whipped cream
2 Light sour cream
3 Nondairy toppings (Cool Whip or Dream Whip)
4 Regular cottage cheese, whole milk yogurt
5 Low-fat cottage cheese, nonfat or low-fat yogurt or none
Score_____
8. Which frozen desserts are you most likely to eat at least once a month?
1 Ice Cream
3 Ice milk, most soft ice cream, Tofutti, Frozen yogurt (cream added)
4 Sherbet, Low-fat frozen yogurt, Lite Lite Tofutti
5 Nonfat frozen yogurt, Sorbets, Ices, Popsicles, or none
Score_____
9. Which kind of cheese do you use for snacks or sandwiches?
1 Cheddar, Swiss, Jack, Brie, feta, American, cream cheese, regular cheese slices or cheese spreads
2 Part-skim mozzarella, Lappi, light cream cheese or Neufchatel, part-skim Cheddar (Kraft Light, Green River, Olympia's Low Fat or Heidi Ann Low-Fat Ched-Style Cheese)
4 Low-cholesterol "filled" cheese (Scandic Mini Chol, Hickory Farms Lyte or imitation Mozzarella)
5 No cheese, fat-free cheese, Lite part-skim Mozzarella, Low-fat Ricotta, Reduced Calories Laughing Cow, Dorman's Light, Weight Watchers or the Lite-line series of cheeses
Score_____
10. Which kind of cheese do you use in cooking (casseroles, vegetables, etc.)?
1 Cheddar, Swiss, Jack, Brie, feta, American, cream cheese, processed cheese
3 Part-skim mozzarella, Lappi, light cream cheese, part-skim Cheddar, (Green River, Olympia's Low Fat, Kraft Light or Heidi Ann Low-Fat Ched-Style Cheese)
4 Low-cholesterol "filled" cheese (Scandic Mini Chol, Hickory Farms Lyte or imitation Mozzarella)
5 No cheese, fat-free cheese, Lite part-skim Mozzarella, Low-fat Ricotta, Dorman's Light, Weight Watchers or the Lite-line series of cheese
Score_____
11. Check the type and number of "visible" eggs you eat.
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 Egg white, egg substitute such as Egg Beaters, Scramblers, Second Nature, or none
Score_____
12. Check the type of eggs usually used in food prepared at home or bought in grocery stores (baked goods, such as cakes and cookies, potato and pasta salads, pancakes, etc.)
1 Whole eggs or mixes containing whole eggs (complete pancake mix, slice-and-bake cookies, etc.)
3 Combination of egg white, egg substitute, and whole egg
5 Egg white, egg substitute or none
Score_____

TOTAL SCORE (DAIRY PRODUCTS AND EGGS)_____

FATS AND OILS

For each question, circle as many numbers as apply and average them to get your score.

13. Which kinds of fats are used most often to cook your food (vegetables, meats, etc.)?
- 1 Butter, shortening (all brands except Crisco or Fluffo) or lard, bacon grease, chicken fat or eat in restaurants at least 4 times a week
 - 3 Soft shortening (Crisco or Fluffo) or inexpensive stick margarine (remains hard at room temperature)
 - 4 Tub or soft-stick margarine, vegetable oil (including olive oil)
 - 5 None or use nonstick pan or spray
- Score_____

14. 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)?

Examples of amounts people often use:

| | | | |
|-----------------------------|--------------------------|-------------------------|--|
| <i>on toast</i> | <i>2 tsp. margarine</i> | <i>on salads</i> | <i>12 tsp. salad dressing (do not include lowcal or fat free dressing)</i> |
| <i>on sandwiches</i> | <i>6 tsp. mayonnaise</i> | | |
| <i>6 tsp. peanut butter</i> | <i>on potatoes,</i> | | |
| <i>2 tsp. margarine</i> | <i>vegetables</i> | <i>3 tsp. margarine</i> | |
| | <i>pasta, rice</i> | | |

- 1 Ten teaspoons or more
- 2 Eight to 9 teaspoons
- 3 Six to 7 teaspoons
- 4 Four to 5 teaspoons
- 5 Three teaspoons or less

Score_____

15. 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?

- 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

Score_____

16. Which best describes the amount of margarine, peanut butter, mayonnaise, or cream cheese that you put on breads, muffins, bagels, etc.?

- 1 Average (1 teaspoon or more per serving)
- 2 Lightly spread (can see through it)
- 4 “Scrape” (can barely see it)
- 5 None

Score_____

17. Which kind of salad dressings do you use?

- 1 Real mayonnaise
- 2 Miracle Whip, Ranch, French, Roquefort, blue cheese, and vinegar and oil dressings
- 3 Light mayonnaise, Miracle Whip Light, Thousand Island dressing
- 4 Russian and Italian dressings, Ranch Salad Dressing made with buttermilk and light mayonnaise or Miracle Whip Light
- 5 Fat-free (mayonnaise, Miracle Whip or salad dressing), low-calorie dressing, vinegar, lemon juice, Ranch Dressing made with buttermilk and low-fat yogurt or use no salad dressing

Score_____

TOTAL SCORE (FATS AND OILS)_____

SWEETS AND SNACKS

For each question, circle as many numbers as apply and average them to get your score.

18. How often do you eat dessert or baked goods (sweet rolls, doughnuts, cookies, cakes, etc.)?

- 1 Three or more times a day
- 2 Two times a day
- 3 Once a day
- 4 Four to 6 times a week
- 5 Three or 4 times a week or less

Score_____

19. Which of the following are you most likely to select as a dessert choice?

- 1 Croissants, pies, cheesecake, carrot cake
- 2 Typical cakes, cupcakes, cookies
- 4 Low-fat muffins, desserts from low-fat cookbooks
- 5 Fruits, low-fat cookies (fig bars and ginger snaps), angel food cake or none

Score_____

20. Which snack items are you most likely to eat in an average month?

- 1 Chocolate
- 2 Potato chips, corn or tortilla chips, nuts, party/snack crackers, doughnuts, French fries, peanut butter, cookies
- 4 Lightly buttered popcorn (1 tsp. for 3 cups), pretzels, low-fat crackers (soda, graham), "home" baked corn chips, low-fat cookies (gingersnaps, fig bars)
- 5 Fruit, vegetables, very low-fat snacks, or none

Score_____

TOTAL SCORE (SWEETS AND SNACKS)_____

GRAINS, BEANS, FRUITS AND VEGETABLES

For this part of the quiz, give yourself points for the following foods you eat each day or week, as specified.

21. Give yourself 5 points for each piece of fruit or each cup of fruit juice consumed a day (not “fruit-flavored” drinks) Score_____
22. Give yourself 5 points for each cup of vegetables eaten a day (tossed salad, cooked vegetables, etc. Typical serving size for tossed salad is 1-1½ cups). Score_____
23. Give yourself 5 points for each cup of legumes eaten a week (refried beans, split peas, navy beans, lentils, chili, etc.) Score_____
24. Give yourself 5 points for each of the following eaten a day:

½ cup cooked cereal
1 cup ready-to-eat cereal
(note: a typical cereal bowl holds 1½-2 cups)
1 slice bread or toast
½ English muffin
1 four-inch pancake

½ hamburger bun
½ Pita or pocket bread
1 six-inch tortilla
1 dinner or hard roll
1 slice French bread
1 small piece cornbread

½ bagel
1 muffin
5 low-fat crackers
3 cups plain popcorn
1 cup pretzels

Score_____

25. Give yourself 15 points for each of the following eaten a day:
(This includes breakfast, lunch, and dinner.)

1 cup cooked rice, bulgur, corn or other grain
1½ cups macaroni, spaghetti or other pasta
1 large baked potato
1½ cups mashed or other potato
Be sure to count these foods when used in casseroles.

Score_____

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

BEVERAGES

For each question, circle as many numbers as apply and average them to get your score.

26. Which of the following reflects your habits regarding alcoholic beverages?

1 drink = *12 ounces beer*
 1½ 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 None or less than one a week

Score_____

27. Which of the following reflects your habits regarding soda pop, sweetened seltzers, fruit punch, etc.? (Do not include diet drinks.)

12 ounce can = *1½ cups*
16 oz. bottle = *2 cups*
32 oz. bottle = *4 cups*

- 1 One or more cups a day or 7 cups a week
- 2 Four to 6 cups a week
- 3 Three cups a week
- 4 One to 2 cups a week
- 5 None or less than one cup a week

Score_____

28. How much caffeinated coffee do you drink?

- 1 Six or more cups a day
- 3 Four to 5 cups a day
- 4 One to 3 cups a day
- 5 None or less than 1 cup a day

Score_____

TOTAL SCORE (BEVERAGES)_____

SALT

For each question, circle as many numbers as apply and average them to get your score.

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

- 1 Regular salt, sea salt, flavoring salts (garlic, onion, celery salt), regular soy sauce
- 3 Combination of regular and reduced sodium salts
- 4 Lite Salt, lower-sodium soy sauce, reduced-sodium flavoring salts
- 5 None or salt substitute (100% potassium chloride)

Score_____

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

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

Score_____

31. 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 (½ typical amount) or Lite Salt (typical amount)
- 4 Lite Salt (½ typical amount)
- 5 None or salt substitute

Score_____

32. 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 (½ typical amount) or Lite Salt (typical amount)
- 5 Salt-free dry cereals or cereals cooked with salt substitute or without salt or do not eat cereal

Score_____

33. How often do you use typical canned, bottled, or packaged foods: salad dressings, ketchup, cured meats (lunch meat, ham, etc.), vegetables, soups (remember chicken broth), chili, entrees and sauces?

- 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

For each question, circle as many numbers or check the choices that apply.

34. How often do you eat breakfast at a restaurant?

- 1 More than twice a week
- 2 Twice a week
- 3 Once a week
- 5 Less than once a month or never

Score_____

35. How often do you eat lunch at a restaurant?

- 1 Daily
- 2 Five days a week
- 3 Two to four days a week
- 4 One day a week
- 5 Less than once a month or never

Score_____

36. How often do you eat dinner at a restaurant?

- 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 or never

Score_____

37. Check the choices you make when eating in restaurants.

- 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.
- When ordering pizza choose vegetarian.
- Avoid cheese, eggs, bacon bits 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_____

38. How often do you eat foods made using low-fat 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)_____

ASSESSMENT OF THE DIET HABIT SURVEY

SCORES FOR 2000 CALORIES WOMEN/CHILDREN

Place your score for each category of questions in the appropriate blank space. Circle the scores for each category that are similar to your score. See in which categories you score closer to Phase III goals and in which categories you score far from the goals. The TOTAL SCORE will give you an idea of your overall eating behavior pattern. The nutrients listed below the total scores will give you a good estimate of your diet composition. Finally, there is space for you to list at least three ways you can change your eating habits towards the Phase III goals.

| | Present | The New American Diet Phase | | | Your Score |
|---------------------------------------|----------------------|-----------------------------|--------------|--------------|---------------|
| | <u>American Diet</u> | I | II | III | |
| Meat, Fish and Poultry | <13 | 13-15 | 16-21 | 22-25 | _____ |
| Dairy Products and Eggs | <22 | 22-27 | 28-32 | 33-35 | _____ |
| Fats and Oils | <15 | 15-18 | 19-21 | 22-25 | _____ |
| Sweets and Snacks | <10 | 10-11 | 12-13 | 14-15 | _____ |
| Grains, Beans, Fruits, and Vegetables | <45 | 45-65 | 66-83 | 84-102 | _____ |
| Beverages | <9 | 9-11 | 12 | 13-15 | _____ |
| Salt | <14 | 14-17 | 18-21 | 22-25 | _____ |
| Restaurants and Recipes | <u><13</u> | <u>13-16</u> | <u>17-19</u> | <u>20-25</u> | _____ |
| TOTAL | <141 | 141-184 | 185-226 | 227-267 | _____ |

These total scores correspond to a diet with the following nutrient composition:

| | | | | | |
|---------------------------|-------|------|------|------|-------|
| Cholesterol, mg/day | 400 | <300 | <200 | <100 | _____ |
| Saturated fat, % calories | 14 | 10 | 8 | 5 | _____ |
| CSI/day | 51 | 37 | 28 | 16 | _____ |
| Fat, % calories | 40 | 30 | 25 | 20 | _____ |
| Carbohydrate, % calories | 45 | 55 | 60 | 65 | _____ |
| Protein, % calories | 15 | 15 | 15 | 15 | _____ |
| Sodium, mg/day | >2875 | 2875 | 2300 | 1725 | _____ |
| Potassium, mg/day | <2535 | 2535 | 3900 | 3900 | _____ |

< means "less than"

> means "more than"

Suggestions for changing eating habits toward Phase III:

ASSESSMENT OF THE DIET HABIT SURVEY

SCORES FOR 2800 CALORIES MEN/TEENS

Place your score for each category of questions in the appropriate blank space. Circle the scores for each category that are similar to your score. See in which categories you score closer to Phase III goals and in which categories you score far from the goals. The TOTAL SCORE will give you an idea of your overall eating behavior pattern. The nutrients listed below the total scores will give you a good estimate of your diet composition. Finally, there is space for you to list at least three ways you can change your eating habits towards the Phase III goals.

| | Present <u>American Diet</u> | The New American Diet Phase | | | Your <u>Score</u> |
|---------------------------------------|---------------------------------|-----------------------------|--------------|--------------|----------------------|
| | | I | II | III | |
| Meat, Fish and Poultry | <12 | 12-14 | 15-20 | 21-25 | _____ |
| Dairy Products and Eggs | <22 | 22-28 | 29-32 | 33-35 | _____ |
| Fats and Oils | <14 | 14-17 | 18-20 | 21-25 | _____ |
| Sweets and Snacks | <10 | 10-11 | 12-13 | 14-15 | _____ |
| Grains, Beans, Fruits, and Vegetables | <70 | 70-96 | 97-127 | 128-160 | _____ |
| Beverages | <9 | 9-11 | 12 | 13-15 | _____ |
| Salt | <14 | 14-17 | 18-21 | 22-25 | _____ |
| Restaurants and Recipes | <u><13</u> | <u>13-16</u> | <u>17-19</u> | <u>20-25</u> | _____ |
| TOTAL | <164 | 164-214 | 215-268 | 269-325 | _____ |

These total scores correspond to a diet with the following nutrient composition:

| | | | | | |
|---------------------------|-------|------|------|------|-------|
| Cholesterol, mg/day | 500 | <350 | <220 | <140 | _____ |
| Saturated fat, % calories | 14 | 10 | 8 | 5 | _____ |
| CSI/day | 69 | 49 | 36 | 23 | _____ |
| Fat, % calories | 40 | 30 | 25 | 20 | _____ |
| Carbohydrate, % calories | 45 | 55 | 60 | 65 | _____ |
| Protein, % calories | 15 | 15 | 15 | 15 | _____ |
| Sodium, mg/day | >4025 | 4025 | 3220 | 2415 | _____ |
| Potassium, mg/day | <3549 | 3549 | 5460 | 5460 | _____ |

< means "less than"

> means "more than"

Suggestions for changing eating habits toward Phase III:

HEALTH 200 WELLNESS LIFESTYLES FITNESS EVALUATION RECORD

Name _____ S.S. Number _____ Birthdate _____ Age _____ Gender: F/M

Lab Instructor: _____ Lab Section: _____ Year: F S J S

Testing Date: ____/____/____ Do you have any condition that would prevent you from participating in this fitness evaluation? Yes ____ No ____
(Specify)

Testing Time: ____:____ am/pm

Medication: _____

Do you participate in regular physical activity? Yes ____ No ____
(Specify)

Body Composition

Waist Girth: _____ Weight _____ lbs Height ____ft.____in Blood Pressure _____/_____

Skinfolds:

Thigh _____
Ilium _____
Adbominal _____

Muscular St. & End.

Grip Strength:

Rating

Flexibility

Rating

Triceps _____

Scapula _____

Chest _____

Axilla _____

| | |
|-------|--|
| Right | |
| Left | |

| | |
|--|--|
| | |
|--|--|

| | |
|-------|--|
| Total | |
|-------|--|

| | |
|-----------|--|
| St. / lb. | |
|-----------|--|

| | |
|-------------|--|
| Trunk Curls | |
|-------------|--|

| | |
|-------|--|
| Trunk | |
|-------|--|

| | |
|-----------|--|
| Shoulders | |
|-----------|--|

| | |
|------|--|
| Back | |
|------|--|

| | |
|-------------------------|--|
| <u>Aerobic Capacity</u> | |
|-------------------------|--|

| | |
|----------|--|
| K. P. M. | |
|----------|--|

| | |
|-------|--|
| H. R. | |
|-------|--|

| | |
|----------|--|
| Est. VOS | |
|----------|--|

| | |
|--------|--|
| VO2/KG | |
|--------|--|

SUM of 3 or 5 _____
4 or 6

% Fat _____ / _____

Rec. Target Wt. _____

Name: _____ Sec. # _____

Exercise Prescription

Directions: Design an exercise program for yourself. Use the information you received in your fitness test. This should adhere to the components and principles of fitness and you should address specific deficiencies you were alerted to. Be sure to set this up as a plan you could, should and would do you for the health of it.

1. List of suggested activities: (what will you do for each of the components of fitness)
example: CRE: walking, stationary bike, Nordic Track M.S and M.E.: push-ups, crunches, lunges, body shaping or weight training (be specific)
2. How many times a week are you willing to commit to this plan? _____
3. What is the amount of time per exercise session you will commit? _____

Prepare an outline of your proposed plan. What you plan to do on each day. You do not have to have something for every day but your prescription should reflect your knowledge about planning an appropriate routine. Include some specific exercises for problems you are encountering: back pain, lack of strength in a specific area, etc.

Five Day Food Journal

Using the *NutriTrac* software, keep a food and beverage intake journal for **five days**. Enter food by meal code (breakfast, lunch, dinner, snack, etc.) and be sure to record approximate amounts (ounces, cups, items, etc.). A bag of doritos may not be explicit enough: a beer is not exact enough - was it a 12 ounce can or a schooner or mega beer because you lost count? You will also need to report the servings per food group so check the pyramid when you finish your program. This will not print out so you will need to copy what you see on the screen.

Report the servings per day and also report a 5 day total. You will have 6 categories from the pyramid and add your daily and total water intake. Once you have your 5 day total compare it to what the recommendations are. Example: you recorded 22 servings of breads and cereals in 5 days. The minimum number recommended for 5 days is 30. Minimum servings are: b & c = 30, fruit = 10, vegetables = 15, meat = 10, dairy = 10, other = no required minimum, but should be limited, water = 40 - 8oz. glasses.

To finish the assignment, write a letter **from your body to your mind** telling yourself how you feel about the way you are being fed. Pay attention to detail, what you are doing right and what you need to improve. Please be creative (humor helps, too). This is an analysis, please type and the length should be approximately one page double-spaced.

Appendix B

Exit Survey

Health - 200 Exit Survey

Directions:

Do not put your name on the scantron sheet, but do fill in your section number. Be sure all of your materials are securely fastened when you hand them. Thank you for taking the time to complete this survey. The information you provide will be used to evaluate Health - 200 and student attitudes towards wellness.

Please record your answer to each question by darkening in the appropriate response on the supplied scantron sheet, use a No. 2 pencil. Should you wish to make additional comments that you believe would be helpful in making Health - 200 better for future students please comment on the attached blank sheet of paper.

Response Options

a=strongly disagree b=disagree c=neutral d=agree e=strongly agree

1. I feel that health information will be useful to me in my future.
2. I did not believe it was important to be required to take a health course in college.
3. To live a healthful life one must be well informed.
4. I seek out health information in magazines, the paper or on TV.
5. Most people would benefit from taking a health course.
6. I do not understand how taking a health class will benefit me in the future.
7. Having to take a health class was of no value to me.
8. I would take an additional health course.
9. Health information will be useful to me in making better lifestyle choices.
10. I tend to disregard health information.
11. Health information is important and relevant in my future well being.

12. I wish I could have avoided taking a health class.
13. As a result of Health-200 my attitude towards my health has improved.
14. I am excited with learning about health and applying the information.
15. Studying health is not important.
16. What I learned in health will help me to better understand how my behaviors effect my health.
17. With some knowledge, one becomes a better consumer of health information.
18. Health information is important to everyday life.
19. Having to make health lifestyle choices makes me uncomfortable.
20. I believe that health education should be required for every student.
21. Health information is too complicated for me to use effectively
22. Health-200 delivered appropriate information to help me begin understanding my responsibility toward my own health/wellness.
23. The behavior modification project helped me to understand how I approach solving behavior related problems.
24. The behavior modification project was of no benefit to me.
25. The assignments in nutrition helped me evaluate and understand my eating behaviors.
26. Having an activity component was beneficial because I was able to try different types of fitness activities.
27. The fitness evaluation was beneficial in helping me realize my present fitness level.
28. Knowing one's blood lipid profile and the relationship to heart disease is important.
29. I was uncomfortable about having to take a blood lipid test.
30. **Answer only if you had a blood lipid profile test done:**

I am glad I know what my blood lipids were and how the numbers are used to indicate future risk of heart disease.

31. Knowing my present fitness level is beneficial.

Please rate each of the following. Use the same scale.

32. Lecture information on behavior change was beneficial.
33. Lecture information on stress and stress management was useful.
34. Lecture information on fitness was helpful.
35. Lecture information on nutrition was helpful.
36. Lecture information on chronic diseases was advantageous.
37. Lecture information on sexually transmitted diseases was beneficial.
38. Lecture information on substance use and abuse was useful.
39. Lecture information on health consumerism was helpful.

We would like to get your input about the activities offered. We are limited to what can be offered by the facility we have. To answer this consider the activity not the instructor. Were these helpful to you in giving you an introduction to a variety of exercise opportunities.

a. poor b. average c. good d. excellent

40. Participation in Step-aerobics
41. Participation in Weight training 2
42. Participation in Walk, Jog, Run
43. Participation in Self-defense and relaxation
44. Participation in Water aerobics
45. Participation in Weight training

Demographics:

46. I am a. male b. female
47. Age: a. 19-20 b. 21-24 c. 25-30 d. above 30
48. I am a. a smoker b. a non-smoker
49. I attended lecture the following number of times
a. 5-10 b. 11-15 c. 16-20 d. 21-25 e. 26-30
50. I missed _____ activity labs.
a. more than 10 b. between 6&10 c. between 3&5 d. 3 or less
51. Without the extra credit what grade would you expect in this class.
a. F b. D c. C d. B e. A

Please feel free to make any additional comments on the back of this survey, do not put your name on the survey or the answer sheet.

Appendix C

**Institutional Review Forms
and
Approval Letter**

Request for Exemption from Full IRB Review

Beverly Zeakes
Assistant Professor
Physical and Health Education
October 28, 1997
831-6572

Protocol for IRB Request Virginia Tech

Justification: The intent of the proposed research is to investigate the effectiveness of a general education health/wellness course at Radford University. The objectives of the course are aimed towards empowering students with appropriate knowledge and strategies to make behavior adjustments concerning their health and well being. If the findings of the research indicate the course is ineffective in obtaining the objectives outlined in the course syllabus, recommendations from the participants will be implemented in the redesign of the course.

Procedures: Subjects will be both male and female students who enrolled in Health 200 sections 5,6,13,14,15,16,17, and 18 for the Spring semester of 1996. Age of the subjects is between 18 and 45+. The enrollment for the sections is approximately 120. Students will self-select to participate in the survey.

Survey attached. The survey is directed at comparing pre and post course behaviors.

Risks and Benefits: There is no apparent hazard or risk involved with answering the survey. As students in the Health 200 course they have been informed of all risks associated with each health risk behavior such as: smoking, alcohol consumption, unprotected sexual intercourse, not participating in regular physical exercise, not eating an appropriate diet, not managing stress. Also, as participants in the course they were informed about where they could receive help (counseling, Community Health, Alcoholics Anonymous, etc.) should they require it.

Confidentiality/Anonymity: Subjects will be identified by a code to insure confidentiality. Persons who will have access to the code are myself and Dr. Susie Milton. Dr. Milton is the consulting statistician. Coding is done for purposes of following up on surveys not returned. Coding will be done by use of a numbering system, 01,02, etc. in consecutive order. Students are not in an identifiable alphabetical order and names will not appear in the statistical program.

Informed Consent: Attached.

Biographical Sketch:

Beverly Zeakes M. S., Assistant Professor in the Physical and Health Education Department at Radford University: 1985 - present. The primary course I teach is Health 200 - Wellness Lifestyles, I have been one of the principal instructors of this general education requirement for the past ten years. I believe I am qualified to do this research because of my involvement in designing the content and structure of the course, my experience in instructing this course, my knowledge of student behaviors related to health and my desire to know whether or not what we are doing meets the course objectives.

There will be no personal contact with the subjects. Dr. Susie Milton will be assisting with the data. Dr. Milton is a professor at Radford University in the Math and Statistics Department. Dr. Milton is one of the primary statistics consultants on campus and has served on doctoral committees in the past.

Faculty Advisor: Dr. Charles Baffi, Associate Professor, Health and Physical Education Program Area, Department of Teaching and Learning, College of Human Resources and Education. Dr. Baffi has been at Virginia Tech since 1982. He has been an advisor on many Doctoral committees and has served on both Masters and Doctoral committees.

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent for Participants of Investigative Projects

Title: Evaluation of Health 200 - Wellness Lifestyles: Can a University General Education Course in Wellness Lifestyles Enhance Students' Knowledge, Behaviors and Attitudes Regarding Their Health?

- I. The purpose of this project is to investigate the effectiveness of Health 200 in promoting positive health behaviors, attitudes, and knowledge.
- II. Procedure: Would you please take a few minutes to complete the following questionnaire. Use a number 2 pencil to record your answers on the enclosed opscan. When completed, place all materials in the return envelope provided. Many of the envelopes are stamped Campus Mail and may be returned through that route. Off campus envelopes have adequate postage to be returned.
- III. It is important to receive each of your surveys. The information will be important in evaluating the effectiveness of Health 200. Your honest responses are vital to the research project and future development of the course. Health promotion has become a national priority and those who teach in the Health 200 program want to be assured that we are doing or will be able to do the best job possible in preparing students to live healthy lives.
- IV. Please **Do Not put your name on the opscan** . The opscan has been coded to enable data to be matched to last semesters information. All answers will be strictly confidential and individual results will not be released. Cover letters will be removed from the surveys before I receive them.
- V. I regret that I cannot compensate each of you for your participation in completing the survey. However, when you return the survey by the closing date, your signed consent form will qualify you for one of four cash prizes: One \$20 prize and three \$10 prizes. Surveys must be returned by November 25, 1997. Winners will be notified following Thanksgiving break.
- VI. Your participation is strictly voluntary.
- VII. Approval of Research: This research project has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects at Virginia Polytechnic Institute and State University, by the Department of Physical and Health Education.
- VIII. Subject's Responsibilities:
I agree to participate in this study. I have the following responsibilities: to complete and return the enclosed survey by the date mentioned and to have answered all questions honestly.
- XI. Subject's Permission

I have read and understand the Informed Consent and conditions of this project. I have all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this project.

If I voluntarily participate, I will agree to abide by the rules of this project.

Signature

Date

Should I have any questions about this research or its conduct, I may contact:

Beverly Zeakes
Investigator

(540)831-6572
Phone

bzeakes@runet.edu
e-mail

Dr. Charlie Baffi
Faculty Advisor

(540)231-8284
Phone

T. Hurd
Chair, IRB
Research Division

(540)231-9359

Request for Exemption from Full IRB Review

Beverly Zeakes
Assistant Professor
Physical and Health Education
October 28, 1997
831-6572

Request for Exemption from Full IRB Review Radford University

5. Exemption from Full Committee Review: Under the guidelines for exemption educational research may be exempt from review if procedures to assure confidentiality and informed consent are evident and subjects are exposed to no more than "minimal risk". Participation in answering the survey is voluntary. The survey inquires about health risk behaviors discussed during the course of the semester: smoking, alcohol consumption, dietary habits, cancer risks, sexually transmitted disease prevention, and stress management skills. The information taken is confidential and disclosure could not place them in any risk of criminal or civil liability or damage their financial standing, etc.
6. Methodology: Students who were enrolled in Health 200 sections 5,6,13,14, 15,16,17 and 18 will be mailed surveys with appropriate letters of instruction and return envelopes with appropriate postage. The survey involves the areas of behavior, attitude, knowledge and course content.
7. Informed consent: Students will consent by returning the survey. Before the survey is sent, students will first be sent e-mail, additional information concerning the study will be explained in a cover letter.
8. Confidentiality: Responses are voluntary and confidential. Identification numbers will be used on the questionnaires to allow follow-up with nonrespondents. The identification will also allow data to be matched to responses on the final exam to responses on the survey. However, when questionnaires are received, corresponding names and addresses will be destroyed so individuals cannot be linked to their responses. Data will be stored on computer disks, identification numbers will be used there are no names used in the computer program. Identification codes will be kept locked in my office, as soon as the data is matched and entered the original list will be destroyed. Individual responses will not be able to be linked to participants names. Computer files are also password protected.
9. Survey attached.

College of Arts and Sciences
Department of Psychology



November 4, 1997

Ms. Beverly Zeakes
Department of Physical and Health Education
Box 6957, Peters Hall
Radford University

Dear Ms. Zeakes:

I have determined that the project, "Health 200 Wellness Lifestyles Survey," for which you requested an exemption does indeed meet the criteria for exemption set out in the relevant Federal and State guidelines (cf. Federal Register, Vol 56, p. 28012, section 101). I am therefore exempting the project from review by the Radford University Institutional Review Board for the Review of Human Subjects Research.

Please remember that all work involving human subjects, whether exempt from full review or not, is subject to the standards for the protection of human subjects established by the IRB. Don't hesitate to contact myself or Janet Hahn in the Office of Sponsored Programs if you have any questions about these standards.

Best of luck with your study.

Sincerely,

A handwritten signature in cursive script that reads "Jeffrey A. Willner".

Jeffrey A. Willner, Ph.D.
Chair, Radford University Institutional Review Board
for the Review of Human Subjects Research

P.O. Box 6966
Radford, VA 24042

(804) 801-2384
(804) 801-5807
(804) 801-6122 FAX

Biology
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Religious Studies
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Sciences and
Anthropology
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Appendix D

Results from Pilot Test

Pilot Test Results for Behavior

| | Those Who CouldNot Improve | Those Who Could Improve | Those Who Improved | Those Who Regressed |
|----------------------------|---|------------------------------------|-------------------------------|--------------------------------|
| Behavior | Percent | Percent | Percent | Percent |
| Smoking | 80 | 20 | 0 | 0 |
| Alcohol Consumption | 20 | 80 | 0 | 20 |
| Stress Management | 0 | 100 | 60 | 0 |
| Fruit Consumption | 20 | 80 | 60 | 20 |
| Vegetable Consumption | 20 | 80 | 20 | 0 |
| Grain, etc. Consumption | 100 | 0 | 0 | 0 |
| Meat Consumption | 40 | 60 | 0 | 0 |
| Dairy Consumption | 40 | 60 | 0 | 0 |
| Sweets & Fats | 0 | 100 | 20 | 0 |
| Label Reading | 0 | 100 | 80 | 0 |
| Aerobic Activity | 0 | 100 | 0 | 20 |
| Strength Training | 20 | 80 | 0 | 60 |
| Self-Exam | 0 | 100 | 60 | 0 |
| Condom Use | 0 | 100 | 100 | 0 |

Pilot Test Results for Attitude

| Question # | Strongly Disagree % | Disagree % | Neutral % | Agree % | Strongly Agree % |
|-------------------|----------------------------|-------------------|------------------|----------------|-------------------------|
| 51 | | | 20 | | 80 |
| 52 | | | 20 | 20 | 60 |
| 53 | | | | 40* | 60* |
| 54 | | | | 20 | 80 |
| 55 | | | 40 | 40 | 10 |
| 56 | | | 20* | 60* | 20* |
| 57 | | | | | 100 |
| 58 | | | | 40 | 60 |
| 59 | | | 20 | 40 | 40 |
| 60 | | | | 40 | 60 |
| 61 | | | | 40 | 60 |
| 62 | | | | 60* | 40* |
| 63 | | | | 40 | 60 |
| 64 | | | | 40 | 60 |
| 65 | | | 40 | 20 | 40 |
| 66 | | | 20 | 60 | 20 |
| 67 | | | | 40 | 60 |
| 68 | | | | 60* | 40* |
| 69 | | | 20 | 60 | 20 |

*Responses were reversed. Questions 53, 56, 62, & 68 were negatively stated.

Pilot Test Results for Knowledge

| Question # | Percent Correct | Percent Incorrect |
|-------------------|------------------------|--------------------------|
| 70 | 80 | 20 |
| 71 | 100 | 0 |
| 72 | 100 | 0 |
| 73 | 100 | 0 |
| 74 | 40 | 60 |
| 75 | 100 | 0 |
| 76 | 100 | 0 |
| 77 | 60 | 40 |
| 78 | 100 | 0 |
| 79 | 100 | 0 |
| 80 | 60 | 40 |
| 81 | 100 | 0 |
| 82 | 80 | 20 |
| 83 | 100 | 0 |
| 84 | 80 | 20 |
| 85 | 80 | 20 |
| 86 | 100 | 0 |
| 87 | 100 | 0 |

Appendix E

**Follow-up Survey
and
Cover Letters**

E-mail message sent before surveys were mailed.

Hi, this is Mrs. Zeakes asking for your help one more time. As you will remember from last year I am working to complete my doctoral degree. In about a week you will be receiving a follow-up survey concerning Health 200. Please take a few minutes to fill out the survey and return it in the self-addressed stamped envelope. I can't tell you how important your survey results are to this project.

Thanks,
Mrs. Z

Health 200 Wellness Lifestyles Follow-Up Survey

Dear Student,

Those of you who completed exit surveys in the spring semester have been of great help, not just to my project but to the Health 200 curriculum. In order to complete the last portion of the research, I need to ask all of you who took Health 200 Spring 1997 for your assistance. The final phase of my research requires post course follow-up. Your answers to this survey will be of great help to me in working to successfully complete my doctoral degree and will also help in evaluating Health 200.

I would deeply appreciate it if you would please take a few minutes to read the informed consent form and complete the following questionnaire. Your participation is voluntary and not required. Should you encounter a question that you are uncomfortable answering leave it blank and continue. It is vital to every research project to have as many surveys returned as possible.

I regret that I cannot compensate each of you for your participation in completing the survey. However, when you return the survey by the closing date, your signed consent form will qualify you for one of the cash prizes: One \$20 prize and three \$10 prizes. Surveys must be returned by December 8, 1997. Winners will be notified before the end of the semester.

Please note that by returning your survey, you have given me permission to use your data. There will be absolutely no way to link your data to you individually once the data has been processed. Your answers are strictly confidential.

Please **Do Not** put your name on the scantron sheet. You will need to use a number 2 pencil on the scantron sheet. When your survey and cover letter are returned they will be separated immediately by another faculty member before I receive them.

Upon completion of the questionnaire please place the last page of the survey, the answer sheet and the cover letter in the enclosed envelope and mail it back. If you are on campus you may mail it through campus mail, if you are off campus your envelope has adequate return postage.

Thank you for your support in this endeavor,

Bev Zeakes, M.S.
Department of Physical and Health Education

Signature

Phone #

Health 200 Follow-up Questionnaire

Demographics:

AGE: Please write your age at the time you were enrolled in Health 200 on the top of your scantron sheet.

Please answer all questions on the scantron sheet enclosed in the packet. Fill in the corresponding circle on the enclosed answer sheet.

1. Gender
 - a. male
 - b. female

Part I: Read each statement carefully. Select the response that best describes your behavior relative to the statement. Fill in the corresponding circle on the answer sheet.

Smoking:

2. **Before taking Health 200**, which best describes your smoking behavior?
 - a. I did not smoke
 - b. I smoked less than 1 pack per day
 - c. I smoked between 1 pack and 2 packs per day
 - d. I smoked 2 packs per day
 - e. I smoked more than 2 packs per day
3. Which answer best describes your **current** smoking habits?
 - a. I do not smoke
 - b. I currently smoke less than 1 pack per day
 - c. I currently smoke between 1 and 2 packs per day
 - d. I currently smoke 2 packs per day
 - e. I currently smoke more than 2 packs per day

Alcohol:

4. If you consumed alcoholic beverages **before taking Health 200**, which best describes your typical drinking behavior?
 - a. I did not consume alcoholic beverages
 - b. I drank less than 2 drinks per day or per drinking occasion
 - c. I drank between 2-4 drinks per day or per drinking occasion
 - d. I drank 5 or more drinks per day or per drinking occasion
5. How would you describe your **current** alcohol consumption.
 - a. I do not consume alcoholic beverages
 - b. I drink less than 2 drinks per day or per drinking occasion
 - c. I drink between 2-4 drinks per day or per drinking occasion
 - d. I drink 5 or more drinks per day or per drinking occasion

Stress:

6. **Before taking Health 200**, how would you describe your skills for managing stress?
 - a. I could identify stressful situations and plan how to deal with them.
 - b. I had some skills and was generally able to resolve the problem.
 - c. I had very few skills and usually found myself stressed and not productive.
 - d. I did not have the stress management skills needed to cope with college life.

7. How would you describe your **present** stress management skills?
 - a. I am able to identify stressful situations and plan how to deal with them.
 - b. I have improved my skills and am able to resolve stressful situations.
 - c. I have very few skills and usually find myself stressed and not productive.
 - d. I still do not have adequate skills needed to cope with the stress of college life.

Nutrition and Weight Management:

Prior to taking Health 200, how would you describe your consumption of the following foods? Use the following answers.

a. 0 servings/day b. 1-2 servings/day c. 3-4 servings/day d. 5-6 servings/day e. over 6/day

8. Consumption of fruits
9. Consumption of vegetables
10. Consumption of grain products: bread, cereal, pasta, rice, etc.
11. Consumption of red meat, poultry, fish, eggs, cheese, or meat substitute
12. Consumption of dairy products
13. Consumption of other foods: candy, desserts, chips, alcohol, etc.

At this time, how would you describe your consumption of the following foods? Use the following answers.

a. 0 servings/day b. 1-2 servings/day c. 3-4 servings/day d. 5-6 servings/day e. over 6/day

14. Consumption of fruits
15. Consumption of vegetables
16. Consumption of grain products: bread, cereal, pasta, rice, etc.
17. Consumption of red meat, poultry, fish, eggs, cheese, or meat substitute
18. Consumption of dairy products
19. Consumption of other foods: candy, desserts, chips, alcohol, etc.

Weight Management:

20. If you are trying to lose weight which of the following best describes your nutrition plan?
- a. I am not trying to lose weight
 - b. I am following the food pyramid, eating lower fat foods and exercising.
 - c. I am on a diet plan and exercising (Slim-fast, Jenny Craig, etc.)
 - d. I am on a diet plan and I do not exercise (Slim-fast, Jenny Craig, etc.)
21. **Prior to taking Health 200**, did you read food labels to help identify foods high in salt, hidden sugar, and high in fat?
- a. always
 - b. sometimes
 - c. never
22. Do you **currently** read food labels to help identify foods high in salt, hidden sugar, and high in fat?
- a. always
 - b. sometimes
 - c. never

Physical: (sports counts as exercise if it fits into the appropriate category)

23. **Prior to taking Health 200**, how would you describe your aerobic exercise routine?
- a. I exercised more than 3 times a week for cardiorespiratory endurance, 20 minutes or more ea
 - b. I exercised at least 3 times a week for cardiorespiratory endurance, 20 minutes or more each
 - c. I exercised less than 3 times a week for cardiorespiratory endurance, 20 minutes or more each
 - d. I had no aerobic exercise routine.
24. How would you describe **your current** aerobic exercise routine?
- a. I exercise more than 3 times a week for cardiorespiratory endurance, 20 minutes or more
 - b. I exercise at least 3 times a week for cardiorespiratory endurance, 20 minutes or more
 - c. I exercise less than 3 times a week for cardiorespiratory endurance, 20 minutes or more each
 - d. I do not have an aerobic exercise routine.
25. **Prior to taking Health 200**, did you lift weights or do alternate exercises for strength and toning?
- a. yes, I lifted at least 2 times per week for each muscle group
 - b. I did a combination of weight lifting and alternate exercises:
 - c. I did not lift weights but do toning exercises and other forms of strength training such as push-ups, pull-ups, abdominal exercises, use resistance bands, body toning without weights
 - d. I did not lift weights or do toning exercises
26. How would you describe your **current** weight training routine?
- a. I weight train at least 2 times per week for each muscle group
 - b. I do a combination of weight lifting and alternate exercises: (bands, push-ups, etc.)
 - c. I do not lift weights but do other forms of strength training (bands, push-ups, etc.)
 - d. I have no weight training routine
27. **Prior to taking Health 200**, did you perform monthly breast or testicular exams?
- a. always
 - b. sometimes
 - c. never
28. Do you **currently** perform monthly breast or testicular exams?
- a. always
 - b. sometimes
 - c. never

29. **Before Health 200** how would you describe your use of condoms to prevent transmission of a sexually transmitted disease (STD's). Monogamous relationship means only one sexual partner.
- not sexually active
 - monogamous relationship, **always** used protection against STD's
 - monogamous relationship, did not **always** use protection against STD's
 - non-monogamous relationships, **always** used protection against STD's
 - non-monogamous relationships, did not **always** use protection against STD's
30. How would you describe your **current** use of condoms to prevent transmission of a sexually transmitted disease?
- not sexually active
 - monogamous relationship, **always** use protection against STD's
 - monogamous relationship, **do not always** use protection against STD's
 - non-monogamous relationships, **always** use protection against STD's
 - non-monogamous relationships, **do not always** use protection against STD's

Which lecture topics do you think were of benefit to you? Those regarding....

- | | | |
|---|--------|-------|
| 31. behavior change | a. yes | b. no |
| 32. stress management | a. yes | b. no |
| 33. nutrition and weight management | a. yes | b. no |
| 34. fitness | a. yes | b. no |
| 35. chronic disease (heart disease, cancer, diabetes, stroke) | a. yes | b. no |
| 36. sexually transmitted disease | a. yes | b. no |
| 37. substance use and abuse (smoking, alcohol, drugs) | a. yes | b. no |
| 38. Was the activity portion of the course beneficial to you? | a. yes | b. no |

Which activities were helpful to you? Those regarding....

- | | | |
|--|--------|-------|
| 39. step aerobics | a. yes | b. no |
| 40. walk, jog, run | a. yes | b. no |
| 41. water aerobics | a. yes | b. no |
| 42. weight training I - Peters Hall | a. yes | b. no |
| 43. weight training II - Dedmon Center | a. yes | b. no |
| 44. campus safety/self-defense | a. yes | b. no |
45. Was having a physical fitness assessment beneficial to you?
- yes
 - no
 - did not have one done
46. Was having a cholesterol test beneficial to you?
- yes
 - no
 - did not have a cholesterol test done
47. As a result of taking Health 200 did you improve your exercise program?
- yes
 - no
48. As a result of taking Health 200 did you improve your eating behaviors?
- yes
 - no

49. As a result of taking Health 200 did you improve, change, or begin behavior(s) that were putting your health and well being at risk?
a. yes b. no
50. As a result of taking Health 200 did it help you with information that could improve your health?
a. yes b. no

Part II: Read each question carefully. Select the choice that best describes how you feel about the statement. Fill in the corresponding circle on your answer sheet.

Response Options

a = strongly disagree b = disagree c = neutral d = agree e = strongly agree

51. The health information I received in Health 200 will be useful to me in my future.
52. To live a healthful life, one must be well informed about health.
53. Having to take a health class was of no value to me.
54. Health information is important and relevant in my future well being.
55. As a result of Health-200 my attitude towards my health has improved.
56. I tend to disregard health information.
57. Health education should be required for every student.
58. Smoking is dangerous to my health.
59. Alcohol consumption exceeding 2 drinks per day is hazardous to my health.
60. Being able to manage stress is important to my well being.
61. Regular exercise (at least 3 times per week) is essential to my health.
62. It's okay to binge drink (5 or more drinks per drinking episode) on the weekends.
63. When I exercise I feel better.
64. Eating a low fat diet is important in managing my weight and preventing heart disease.
65. When I eat healthfully I feel better.
66. Using condoms along with spermicides is the most effective way to have **safer sex**.
67. I should do monthly self-exams to help in the early detection of several forms of cancer.
68. The health behaviors I have in college have little relationship or effect on my health later in life.
69. Health-200 delivered appropriate information to help me begin understanding my responsibility toward my own health and wellness.

Please go to the next page.

Part IV: Please respond to the following questions in writing. When finished detach this page and mail it back with your answer sheet and the consent form in the enclosed envelope. If currently a student please use campus mail. If you are not currently a student your envelope is pre-stamped. Thank You.

88. Was Health 200 of benefit to you? If yes, how was it of benefit? If no, can you explain why it was not of benefit?

89. Have you shared information from Health 200 with friends and or family? Briefly give an example or two of what you shared.

90. Would you recommend Health 200 to a friend? Why?

Health 200 Wellness Lifestyles Follow-up Survey

Dear Student,

This is a second request for your help. Doing research is an extremely difficult endeavor. The researcher depends upon the helpfulness of those being surveyed in order to gather enough information to make the project reliable. Please take a few minutes to help, I cannot complete my doctoral degree without your responses. Time is a major element your expedient return will be appreciated.

Those of you who completed exit surveys in the spring semester have been of great help, not just to my project but to the Health 200 curriculum. In order to complete the last portion of the research, I need to ask all of you who took Health 200 Spring 1997 for your assistance. The final phase of my research requires post course follow-up. Your answers to this survey will be of great help to me in working to successfully complete my doctoral degree and will also help in evaluating Health 200.

I would deeply appreciate it if you would please take a few minutes to read the informed consent form and complete the following questionnaire. Your participation is voluntary and not required. Should you encounter a question that you are uncomfortable answering leave it blank and continue. **It is vital to every research project to have as many surveys returned as possible.**

Please note that by returning your survey, you have given me permission to use your data. There will be absolutely no way to link your data to you individually once the data has been processed. Your answers are strictly confidential.

Please **Do Not** put your name on the scantron sheet. You will need to use a number 2 pencil on the scantron sheet. When your survey and cover letter are returned they will be separated immediately by another faculty member before I receive them.

Upon completion of the questionnaire please place the last page of the survey, the answer sheet and the cover letter in the enclosed envelope and mail it back. If you are on campus you may mail it through campus mail, if you are off campus your envelope has adequate return postage.

Thank you for your support in this endeavor,

Bev Zeakes, M.S.
Department of Physical and Health Education

Signature

Phone #

Appendix F

Responses in Percents
for
Behavior and Attitude Questions

Responses to Behavior Questions Pre-Course

| Responses to Behavior Questions Pre-Course | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|
| Behavior | A % | B % | C % | D % | E % |
| Smoking | 73 | 23 | 5 | 0 | 0 |
| Alcohol Consumption | 9 | 32 | 30 | 30 | 0 |
| Stress Management | 16 | 57 | 20 | 7 | 0 |
| Fruit Consumption | 36 | 57 | 7 | 0 | 0 |
| Vegetable Consumption | 23 | 64 | 11 | 2 | 0 |
| Grain, etc. Consumption | 2 | 34 | 52 | 9 | 2 |
| Meat Consumption | 5 | 66 | 25 | 5 | 0 |
| Dairy Consumption | 9 | 41 | 36 | 11 | 2 |
| Sweets & Fats Consumption | 11 | 39 | 30 | 20 | 0 |
| Label Reading | 18 | 55 | 27 | | |
| Aerobic Activity | 11 | 23 | 18 | 48 | |
| Strength Training | 14 | 18 | 14 | 55 | |
| Self-Exam | 7 | 34 | 59 | | |
| Condom Use | 25 | 25 | 32 | 11 | 7 |

Responses to Behavior Questions Post-Course

| Responses to Behavior Questions Post-Course | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|
| Behavior | A % | B % | C % | D % | E % |
| Smoking | 77 | 20 | 2 | 0 | 0 |
| Alcohol Consumption | 9 | 32 | 23 | 36 | 0 |
| Stress Management | 41 | 57 | 2 | 0 | 0 |
| Fruit Consumption | 18 | 70 | 9 | 2 | 0 |
| Vegetable Consumption | 7 | 73 | 16 | 5 | 0 |
| Grain, etc. Consumption | 0 | 27 | 55 | 16 | 2 |
| Meat Consumption | 2 | 59 | 34 | 2 | 2 |
| Dairy Consumption | 9 | 43 | 34 | 9 | 5 |
| Sweets & Fats Consumption | 18 | 52 | 23 | 7 | 0 |
| Label Reading | 45 | 45 | 4 | | |
| Aerobic Activity | 23 | 14 | 36 | 27 | |
| Strength Training | 25 | 23 | 9 | 43 | |
| Self-Exam | 25 | 45 | 30 | | |
| Condom Use | 23 | 34 | 27 | 11 | 5 |

Responses to Attitude Questions

| Responses to Attitude Questions By Percent | | | | | |
|---|--------------------------|-----------------|----------------|--------------|-----------------------|
| Question # | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| 51 | 0 | 0 | 5 | 43 | 48 |
| 52 | 0 | 2 | 5 | 25 | 64 |
| 53* | 0 | 5 | 9 | 27 | 55 |
| 54 | 0 | 0 | 7 | 32 | 57 |
| 55 | 0 | 9 | 18 | 48 | 20 |
| 56* | 2 | 5 | 11 | 43 | 32 |
| 57 | 2 | 2 | 27 | 14 | 50 |
| 58 | 2 | 0 | 0 | 14 | 80 |
| 59 | 0 | 16 | 9 | 30 | 41 |
| 60 | 0 | 2 | 2 | 32 | 59 |
| 61 | 0 | 2 | 11 | 39 | 43 |
| 62* | 5 | 7 | 34 | 27 | 27 |
| 63 | 0 | 0 | 7 | 34 | 55 |
| 64 | 2 | 7 | 11 | 25 | 50 |
| 65 | 0 | 2 | 18 | 41 | 34 |
| 66 | 5 | 5 | 5 | 36 | 45 |
| 67 | 0 | 2 | 2 | 50 | 41 |
| 68* | 5 | 11 | 5 | 25 | 50 |
| 69 | 0 | 0 | 7 | 36 | 52 |

*Scores were reversed for these questions.

**Results represent 95% of student responses. Two students were identified as answering the questionnaire in reverse order.

Appendix G
Student Comments

88. Was Health 200 of benefit to you? If yes, how was it of benefit? If not, can you explain why it was not of benefit?

Yes, Health 200 was of benefit to me. I feel that it was because I was informed on many subjects that I was not sure of. Things such as my diet, not exercising enough, and just how to take better care of myself overall.

Yes, it was beneficial to me. I learned more about disease and what we can do to live longer.

Yes. I gained new insight on how to properly workout aerobically. I also am more likely to wear sunscreen outdoors.

Health 200 was beneficial in some ways to me. I already knew most of the info. provided because I am health conscious and I am a P>E. major. I think that this class is good for other students who may not be so well informed.

Yes, Health 200 was of benefit to me. I was able to learn how to go about changing behaviors that were not contribution to my wellness. In essence, it armed me with the facts to make these behavior and provided me with the information to motivate such changes. On the other hand, having this information simply makes me feel guilty for not having implemented the changes I would like.

Yes, it was beneficial. I learned how to get and stay healthy even if I don't do it.

Health 200 was somewhat beneficial. It allowed me to be more aware of what I have to do to be more fit and also helped me to distinguish different food labels.

Yes, I ate better and knew more about my body and what was going on in it.

Not really good for me, b/c everything I wanted to learn about (drug abuse, STD's) I already knew.

It was a benefit. I learned how to eat and exercise properly.

Yes, got me started on exercise aerobic and weight training. My diet is high in protein and carbs only because IM trying to gain mass, not to concerned about fat because if I eat it, I exercise more than enough to burn it. Class also helped me to stop smoking.

Yes. It help me learn what I need to do in order to live a healthy life.
Yes it was of benefit. I learned alot about weight training and was able to use it. I am now a healthier person due to the class and live a better lifestyle.

Yes: for example, in an attempt to prevent date rape I always open my own beer and I do not drink out of a glass or can I have left open and unattended because I do not want someone to slip a drug into my drink.

Health 200 is a lot like any other health & P.E. class in high school We continually learn about the same things. It is not the teacher fault, it is the curriculum. I do not think Health 200 should be a requirement. Overall, I can say I have benefited from the class. It is easy to expect what to learn about, and it really is the same old stuff from high school.

Yes, I learned a lot about my body what I can do to change my lifestyle. I learned that my cholesterol is at a great level.

Yes, it informed me on issues I only put to the back of my mind. It reminded me that I need to improve.

Yes, it was. I have increased my vegetables intake to prevent cancer.

Yeah, it was of benefit to me. I learned alot of important facts about nutrition & fitness. I liked the weight training activities- I still do some of those exercises now.

I enjoyed Health 200 and feel that it was beneficial. The topics were interesting and catered to our age group.

Yes, it made me realize and learn info I didn't know before and made me think about acts in the future.

Yes, but labs were a waste of time.

This class simply made me aware of what I need to do to stay healthy.

Beneficial, learn good info.

Yes, it is important to have information in order to make a choice on health care.

Health 200 was a great benefit. It either cemented or encouraged my beliefs about health practices. Last semester stress was a huge problem for me and this semester has been virtually stress free.

Health 200 was definitely a benefit to me for learning about nutrition and how to change your behavior to properly lose weight & become healthier.

Yes, it is always nice to be refreshed about the stuff I learned back in middle & high school, it is all very important to me and every once in a while it is good to have the reminders that his class can give you.

Yes it was, it was fun & at the same time educational. I learned about weight management and exercise.

I did learn quite a bit, but a lot of it was a pain.

Yes. It has help me with diet and lifting weights. Most of it was a review from A & P.

Yes-health 200 was beneficial to me. I felt that I learned alot from this class. I thought the sections on health and fitness were great! I also was very informed by the sections on STD's and cancer.

I was beneficial to me because I was able to learn new health related information and confirm some information I learned before.

Health 200, I fee was beneficial. I learned many things I probably would have never learned, had I not take this course.

89. Have you shared information from Health 200 with friends and or family? Briefly give an example or two of what you shared.

Alot about cancer, cholesterol and heart disease w/ my family and with my friends. I talked about the different STD's.

Yes-I have shared the information. For example: I told my roommates about heart diseases being the #1 cause of death in the U>S. I also told them about STD's and smoking hazards.

Sometimes, a lot with my friends, constant reminders of how bad smoking is for them. How much better they will feel if they exercise.

Can't think of any particular instance- but have retained more knowledge than usual!

After we watched the slides on STD's I couldn't help but share that experience w/ other students and I strongly recommended that they take the course.

I have shared info about cutting vegetables (not to, if possible) with my family. Info about nutrition vs. popping vitamins for health, I have also shared.

Yes, can't recall off hand.

Yes, I have. When handling chicken, make sure to wash hands, utensils, table, etc. thoroughly.

Yes, while I was taking the class I would always come home and talk to my roommates about something new I learned in class.

Yes, I shared w/ friends and family. I shared about more fruits/vegetables. I now eat more of them. What was once a taboo food really isn't.

I can't say that I have.

I told my boyfriend about testicular cancer and tried to put my dad on a diet because he's a candidate for a heart attack.

Yes-results of my cholesterol test-I was so happy w/ my results.

Yes, I have encouraged many friends to stop smoking and have warned them of the dangers. I also do not drink and encourage friends not to binge drink or not to drink at all.

The thing that I shared the most was the information on STD. I shared it with friends as well as my parents.

-To asked boyfriend to cut back on smoking

-Ask friends to go exercise w/ me.

Yes, I told my dad some info. I learned about lifting and was able to help out my grandmoms diet.

Yes, I have talked to my mom about heart diseases.

Yes, EX. How easy it is to get STD's. How exercise doesn't have to strenuous.

No

Yes, I've shared the risk & causes of STD's and shared exercise and diet important w/ family.

Some. I shared information about labels.

Talking to friends, we make fun of how, according to the book, most of Radford's students are alcoholics (which is not true).

Yes, with my granddaddy, my only other relative.

No. I really haven't shared any information except maybe fitness info.

Yes, but I don't know any exact examples. I share whatever I can whenever I can.

Yes, I have shared the information that I learned in Health 200 with a family member. he has been able to make some change in his own lifestyle because of that information.

I have shared what the components of fitness are and how long aerobic exercise should last (at least 20 min).

I have shared some of the nutrition information with a friend that is a dietetics major at Virginia Tech. her and I both exchange information and learn more from each other. I also let my sister look through the book and pay special attention to dealing with stress. She will be entering college in the fall.

I am trying to not smoke (socially) whine I'm out with friends on weekends and encourage my friends to do the same.

Yes I have. I showed friends and family members how to read labels especially what the "bad" oils and the "good oils" are in food. I also showed them how subsisting ingredients is more healthy. Like a splash of lemon juice instead of salt or by using a half of stick of butter instead of a whole if a recipe calls for it.

Yes, I've discussed the affects of smoking and drinking w/ friends.

Yes-I helped my mom with her exercise program. And I shared the STD & disease info w/ my friend.

Yes. I encourage my roommates to do checkups on their breast & yearly exams. I fee that alot of younger girls ignore those two things too much.

Yes, I have shared info with friends & family. Some info shred was the # of k/cal in a gram of various types of foods---alcohol, protein, carb. I also told people about our behavior lifestyle change projects.

No not really. I basically shared with them what I know. I told them that in order to receive the least benefit, they have to exercise 3-4s/wk for 20 min.

Yes. I learned many helpful facts about exercise and nutrition.

Yes. Talked about exercise and lifting weights.

90. Would you recommend Health 200 to a friend? Why?

Yes because everyone should know this valuable information.

I would recommend Health 200 to a friend; however, I do not think that it should be a requirement of the university for all of its students. The information presented and the change of behaviors that is proposed will be of no help to someone who is not yet ready to make such changes. In addition being forced to take a course when all that you are trying to concentrate on are the courses in your major doe not make you inclined to be receptive of the information in that course.

Yes, Its required anyway.

I would recommend Health 200 to only those people who were interested in taking it, otherwise you really won't anything out of it.

Yes, b/c you can see hot chicks in bathing suits.

Yes. The labs were fun!

Yes because it is a lot of important info that comes during college time. They can change their lifestyle now.

Yes, around good common sense that needs to be made clear and reinforced to remember.

Yes. I had a very good teacher . But I think it would help people realize what they need to correct about their health before its to late.

Yes, I really learned info beneficial to my future and to living longer.

Yes, some people (average guys especially) do not take as good a care of themselves as they should.

I would recommend it depending on my friends. If they already ate well, exercised, used protection then I probably would not. I think it also depends on my friends interests, if they really like learning about Health, then I would encourage them to take the class.

Yes, I feel that Health 200 class taught me a lot about my health & well-being and I feel that it was very beneficial to me today as well as in the future.

Yes, its a very informative class w/ a variety of topics that are of interest to anyone who wants to learn more about themselves (health-wise).

Yes! I learned so many important issues.

I would recommend this class to anyone half way. Half of the information taught in this class has been drilled into us since the 4th grade when we had our first health class.

Yes, it benefits everyone.

Yes, because its very informative.

Yes, because it gives you important information about how to be healthy and how to cope with stress.

Yes, good info., people should know.

Yes, same reason as #88.

I also recommended Hlth 200 to a friend for taking the lab, I though they were fun and personally learned a lot about weight training.

Yes-interesting , informative and beneficial.

Yes, I think everyone should be required to take a class like this. It is good for everyone not just you, but how you take care of yourself could affect others.

Yes I think everyone should have to take it. Everyone can benefit from this class some way or another.

Yes, because you learn a lot about your health. It makes you more aware of things that you thought were good but was really bad.

I wouldn't recommend this class but I would say that it benefits people if they allow it to. If a student doesn't take the class or their health seriously, they shouldn't take it. The information from Health 200 is helpful but not the exercise part of it.

Yes, I would. I think it is important to know how to maintain a healthy lifestyle. Before this class, I didn't realize that healthy was a lifestyle.

Yes. It contains a great deal of very important and useful information. It doesn't require a huge amount of outside study/work, and the activity labs are an excellent break from days full of lecture classes.

Yes, b/c everyone should have the opportunity to learn how to care for themselves.

Yes, its great way to learn different ways to exercise or how to use equipment properly.

Yes, because you learn a lot that applies to your life now and in the future.

Yes-it is the most important info given in 4 years at RU that I have seen. However, the desperately need to research & teach about chiropractic care & holistic medicine. Drugs are not the only solution. That was my only problem with the course.

Yes. It is very informative and enjoyable.

Yes, I think it has a lot of good info that is disseminated. Most people would benefit w/ the valuable info. supplied.

Yes, because it involved everyone's life and health issues.

No. One may learn stuff, but all the work activities and labs are not worth the effort. If someone has a full work load, this class on top of it will cause of lot of stress.

Yes. That way he or she would have some idea of what to do to try to stay Healthy.

Appendix H
Currency Survey

Appendix I

Vita

Beverly Jean Skolaut Zeakes

Beverly Jean Skolaut Zeakes was born August 14, 1948, in Great Bend, Kansas. She received her Bachelor of Science Degree in Physical and Health Education in December, 1970 from Kansas State University. She was married to Samuel Zeakes in January 1969 and has two children Jason, who now lives in Germany and Nichole Hawkins who resides with her husband Kyle in Forrest, Virginia.

In 1984, Beverly applied to Radford University and was accepted as a graduate teaching fellow in the Department of Physical and Health Education. She received her Master of Science degree in Physical Education in August 1985.

Beverly entered the doctoral program in Teaching and Learning: Curriculum and Instruction with an emphasis in Health Education at Virginia Polytechnic Institute and State University, Blacksburg in January of 1993. She was awarded the Doctor of Education in Curriculum and Instruction on June 30, 1998.

Beverly has taught at Radford University, Radford, Virginia in the Department of Physical and Health Education since 1985 and is currently employed as an Assistant Professor. She is actively involved in the Health Division of the Virginia Association of Health, Physical Education, Recreation, and Dance and has been a member of the Honor Society of Phi Kappa Phi since 1985.