

A NEEDS ASSESSMENT OF UNIVERSITY  
STUDENTS FOR WELLNESS PROGRAM  
CURRICULUM PLANNING

By

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## CHAPTER I

### INTRODUCTION

The evolution of the system of medical care in the United States has created a society which is basically indifferent about personal lifestyle choices as a principal determinant of health (O'Donnel and Ainsworth, 1984). Historically, health has merely been considered to be the absence of disease. Medical technology has been relied upon to control the threat of disease. Indeed, modern medicine has made great strides toward eliminating death and disability caused by infectious diseases. However, the chronic diseases which are today's killers, that is, heart disease, cancer, and stroke, are proving to be more difficult to control. The apparent reason for this is the absence of "miracle drug" cures for chronic degenerative conditions. These diseases are largely determined by individual lifestyle choices in areas such as nutrition, physical fitness, stress management, choice of environment, and use of alcohol, tobacco, and drugs (O'Donnel and Ainsworth, 1984). The Centers for Disease Control estimates that 51% of U.S. mortality is due to unhealthy behavior or lifestyle (Levy, Dignan, and Shirreffs, 1984).

Coronary heart disease has reached epidemic proportions in most technologically advanced societies. Beginning at age 30 for men and age 40 for women, it is the single largest



cause of death in the United States (McArdle, Katch, and Katch, 1986). Cardiovascular disease in the U.S. is estimated to cost \$2.5 billion per year in direct health care expenditure and \$11.2 billion in foregone earnings (Hartunian et al., 1980). Hypertension is estimated to cost \$16 billion per year in direct and indirect expenditures (Kristein et al., 1977). Continual increases in health care costs have become a critical national issue. Between 1965 and 1983, health care expenditures rose from \$39 billion to \$322 billion, representing an increase of from 5.9% to 10.5% of the gross national product (U.S. News and World Report, 1983). We are coming to the realization that our society cannot continue to bear the costs of these diseases, many of which are preventable. In response to these sobering realities, the concept of wellness has taken a strong foothold in the 70's and 80's (Levy, Dignan, and Shirreffs, 1984). Wellness is defined as more than the absence of disease but as "the optimal attainable state of well-being in body, mind, and spirit" (O'Donnel and Ainsworth, 1984). Accordingly, wellness and health promotion programs designed to help the individual change unhealthy behaviors and lifestyles have been implemented in hospitals, business and industry, and university settings. These programs begin with the fundamental consideration that individuals must be motivated to take responsibility for their own health. The programs then aid the individual in identifying health risks, and teach the modification of behavior designed to eliminate these risks. Educational opportunities and a supportive environment necessary for

implementing and maintaining positive lifestyle choices are key components of successful programs.

It is with these considerations in mind that a permanent wellness center for Oklahoma State University (OSU) students has been proposed. Critical decisions regarding dietary habits, importance of exercise, coping with stress, and use of drugs, alcohol and tobacco are likely to be made during the college years. This would seem to be an opportune time to assist students in implementation of positive lifestyle choices via a comprehensive wellness program.

#### Statement of Problem

The purpose of this study was to identify the components of wellness about which OSU students desire information and education. Data from the study will be utilized to assist in effective planning of appropriate classes and seminars as part of a student wellness program.

#### Extent of the Study

#### Delimitations

The study was delimited to a sample of 150 students at OSU. The students were deliberately selected from a pool of 804 applicants who volunteered for participation in a student wellness program pilot project. The project was the initial phase in the development of a proposed permanent program.

### Limitations

The results of the study may be affected by the following limitations:

- (1) The sample was not randomly selected from the student population.
- (2) The content validity of the questionnaire used in the study was established by an expert panel of college professors in health related fields.

### Assumptions

The following assumptions were made:

- (1) The subjects would respond honestly to the questionnaire.
- (2) The subjects were knowledgeable enough about the components of wellness to respond accurately to the survey.

### Hypotheses

The following hypotheses were tested at the .05 level of significance:

- H<sub>1</sub>: There will be no significant differences between males and females in selection of wellness components for further education.
- H<sub>2</sub>: There will be no significant differences among age groups in selection of wellness components for further education.

## Significance fo the Study

Results of the needs assessment utilized in this study could prove to be useful in planning wellness programming. If preferences in wellness component selection are observed within the sample, the frequency distribution could be used to assist in determining staff requirements and equipment and facility space needs.

Comparison of survey responses between genders and among age groups could also be beneficial in structuring effective wellness programming. If significant differences are observed, wellness program staff could perhaps be better able to anticipate the needs of particular groups and thereby maximize the quality and appropriateness of programming offered.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

#### Introduction

This chapter will review the wellness concept and discuss the various dimensions of wellness programs. The Oklahoma State University wellness program model will be described. The 15 topic areas selected for inclusion on the needs assessment survey utilized in this study will also be examined.

#### The Wellness Concept

The goals of wellness are to maximize the individual's well-being and to establish lifestyle patterns that promote this well-being throughout life (Leafgren and Elsenrath, 1986). Individual responsibility for choice and change is a theme central to the wellness concept. As Pelletier (1979) states, "Further directions in health must involve the modification of the conditions which led to disease rather than simple intervention in the mechanism of a disorder after it has occurred. Health is not the absence of disease but a state of optimum functioning about which we have very little information." Ardel and Tager (1982) observe that "modern medicine is a wonderful thing, but there are two problems with how we view it: people expect too much of

it, and too little of themselves."

### Wellness Dimensions

Hettler (1980) identified the following six dimensions of wellness:

Emotional Development. This dimension emphasizes self-acceptance, realistic assessment of one's strengths and limitations, development of autonomy, management of stress, and the development and maintenance of satisfying interpersonal relationships.

Intellectual Development. This component of wellness encourages mental stimulation and creativity, utilization of intellectual and cultural activities in and beyond the classroom, and an appreciation of human and learning resources available within the university community and the larger community.

Physical Development. Attainment and maintenance of cardiovascular fitness and muscular strength, endurance, and flexibility through regular strenuous activity are the goals of this dimension. It encourages awareness of human nutrition and medical self-care. Discouraged is the use of tobacco, drugs, and excessive alcohol consumption.

Social Development. Social development fosters contribution to the community, awareness of interdependence with others and nature, and the pursuit of positive family relationships.

Occupational Development. This component focuses upon preparation for satisfying life work and periodical reexamination of one's attitudes about work.

Spiritual Development. This final dimension seeks meaning and purpose in human existence and an appreciation for the expanse of life and natural forces that exist in the universe.

Sanford (1962) described personal development of the student as being the central aim of education and he held that all of our resources in higher education should be put into the service of that aim. Resources exist on many college campuses to aid in the development of the six dimensions of wellness discussed previously. Indeed, one of the unique characteristics of American higher education is its provision for the extracurricular life of college students. In many other countries collegiate institutions are not interested in total student development, only intellectual growth (Leafgren and Elsenrath, 1986).

Wellness programming is the means by which university resources can be coordinated and student development maximized. Students must be made aware of their options and must recognize that they have the ultimate responsibility in making personal lifestyle choices. They must understand that decisions made now will have a significant impact on their future health and well-being.

Oklahoma State University Student  
Wellness Program Model

The Oklahoma State University model consists of a four-phased approach to wellness (Edgley, Oberle, and Rogers, 1986). The four phases are assessment, education, intervention, and facilitation. Integral to each phase is individual and/or group counseling.

Phase I: Assessment. This phase consists of a health risk appraisal with the outcomes being a determination of present health status and identification of risk factors meriting consideration.

Phase II: Education. Upon selection of an area or areas of concentration, the educational phase focuses upon the development of a factual knowledge base and the acquisition of behavior modification skills. The goal of this educational step is to provide tools with which the third phase, intervention, can be accomplished.

Phase III: Intervention. This is the "action" phase wherein lifestyle modification strategies are implemented. Critical to this phase is individual counseling and/or group support to reassess progress, commitment, and the fundamental concept of wellness, self-responsibility.

Phase IV: Facilitation. This ongoing phase concentrates on both internal motivation and the development of external support systems to assist in effecting desired lifestyle change.



## Wellness Topic Areas

The following is a discussion of the topic areas appearing on the needs assessment questionnaire utilized in this study. Included topic areas are weight control, smoking cessation, stress management, time management, aerobic exercise programs, weight training, diet and nutrition, self-concept, study skill improvement, human sexuality education, sexually transmitted disease education, substance abuse education, substance abuse intervention, personal safety awareness, and heart attack risk reduction.

### Weight Control

Obesity is defined as excessive enlargement of the body's total quantity of fat (Katch and McArdle, 1988). In males, borderline obesity is a body fat percentage of 20% of total body weight; in females, obesity would correspond to a body fat percentage above 30%. Forty percent of the adult population in the U.S. is overweight and more than 11 million are severely obese (Mayo Clinic Health Letter, 1987). Although adult Americans commonly exhibit increased body fat percentages as they age, observations of older men and women who maintain very active lifestyles suggest that this pattern of fat gain can be attenuated significantly (Pollock, 1984).

The following are medical conditions associated with obesity (from McArdle, Katch, and Katch, 1986): (1) impairment of cardiac function due to an increase in the heart's

mechanical work, and due to left ventricular dysfunction; (2) hypertension; (3) diabetes, since about 80% of adult-onset diabetics are overweight; (4) renal disease; (5) gallbladder disease; (6) pulmonary diseases and impaired function due to the added effort to move the chest wall; (7) problems in administration of anesthetics during surgery; (8) osteoarthritis, degenerative joint disease, and gout; (9) several types of cancer (e.g., a severely obese post-menopausal woman has a five-fold greater than normal risk of developing cancer of the uterine lining); (10) abnormal plasma lipid and lipoprotein concentrations; (11) menstrual irregularities; and (12) an enormous psychologic burden.

Energy balance in the body is achieved when body weight remains constant and caloric intake equals caloric expenditure. Three ways to upset this balance and thereby decrease body weight are to: (1) reduce caloric intake below daily energy requirements, (2) maintain daily energy requirement through regular food intake while increasing energy output, and (3) combine methods 1 and 2 by decreasing food intake and increasing energy expenditure (DeVries, 1980).

Long-term weight control through dietary restriction alone is successful less than 20% of the time (McArdle, Katch, and Katch, 1986). The disadvantages of such semi-starvation include a loss of lean body tissue, lethargy, possible malnutrition and metabolic disorders, and a decrease in basal energy expenditure. These factors can actually combine to conserve energy and cause the attempt at weight

loss to be less effective.

Combinations of regular aerobic exercise and diet produce the most successful weight reduction programs (Stokes, Moore, and Moore, 1986). Exercise increases the mobilization of fat, thus facilitating fat weight loss, and at the same time retards losses in lean tissue. For purposes of weight control it is generally recommended that the calorie burning effect of each exercise session should be at least 300 kcal (McArdle, Katch, and Katch, 1986). This could be achieved by 20 to 30 minutes of moderate to vigorous running, swimming or bicycling, or by walking for 40 to 60 minutes.

For effective weight control it is crucial to maintain a sustained caloric deficit for extended periods of time. Shorter periods cause a larger percentage of water and carbohydrate loss per unit of weight reduction with only a minimal decrease in body fat (McArdle, Katch, and Katch, 1986). Reducing body size through diet and exercise is only part of the battle; maintaining weight loss over the long term requires firm commitment.

### Smoking Cessation

In 1982, the Surgeon General described smoking as "the most important health issue of our time" and identified the effects of cigarette smoking as "the chief preventable cause of death in our society" (Cancer: Report of the Surgeon General, 1982). Indeed, cigarette smoking was directly

related to the deaths of more than 500,000 Americans in 1986 (about 25 percent of all deaths) with adverse health effects of smoking costing the American public \$65 billion annually (Mayo Clinic Health Letter, 1987). Although only one-third of adults in the U.S. smoke today, still there are 52 million smokers.

The range of diseases associated with smoking is extensive. Smokers have been shown to have greatly increased risks of premature coronary heart disease, arteriosclerosis, aortic aneurysms, peripheral vascular disease, cerebrovascular disease, chronic bronchitis and emphysema, asthma, gastric problems, dental problems, as well as cancer of the oral cavity, esophagus, pancreas, larynx, lung, kidney, and bladder (Levy, Dignan, and Shirreffs, 1984).

It is estimated that 85 percent of lung cancer cases can be traced to cigarette smoking (Mayo Clinic Health Letter, 1984). Until recently this lethal form of malignancy occurred primarily in men because fewer women smoked cigarettes. However, women are now catching up to men in the incidence of the disease. At the current rate, by the year 2000 women will achieve equality with men in lung cancer fatalities (Mayo Clinic Health Letter, 1984). Lung cancer has now surpasses breast cancer as the leading cause of cancer death in women (Mayo Clinic Health Letter, 1987).

Most current adult smokers have either tried to quit smoking or want to try (Pechacek, 1979). Encouragingly, each year 3 million Americans are successful in quitting, many of whom have failed in previous attempts (Mayo Clinic

Health Letter, 1987).

When considering methods of smoking cessation, it is necessary to first examine why people smoke. For some people, the need becomes an addiction, an actual physiological craving. For others, psychological considerations are more important. One study identified six different types of smokers, ranging from a group which exhibited strong physiological addiction to a group which had little or no craving who said they would not find quitting difficult at all (Levy, Dignan, and Shirreffs, 1984).

There are many approaches to smoking cessation and no one method is right for everyone. Strategies range from quitting "cold turkey" to elaborate, highly structured group programs designed to gradually reduce smoking over a period of several weeks. Specific approaches include individual and group programs, hypnosis, aversion therapy, behavior modification, and applied learning theory through the use of rewards and punishment (Levy, Dignan, and Shirreffs, 1984).

Many people find it possible to stop smoking temporarily but difficult to stay off cigarettes for over a year. Good programs have success rates of 30 to 40 percent at one year follow-ups (Kulling, 1988).

### Stress Management

Stress is defined as a state of psychological or physiological arousal which, if prolonged, can fatigue

or damage the body (Bartley and Belgrave, 1987). The non-specific physical reactions to stress include decreased blood flow to the skin and internal organs, increased cardiac output due to increased heart rate and stroke volume, elevated blood pressure, increased rate of respiratory ventilation, and increased tension in skeletal muscles (Levy, Dignans, and Shirreffs, 1984).

Stress is an inevitable component of life. We continually face a variety of stressors which require physiological and psychological adaptation. Excessive stress can become a disease promoting agent and it constitutes a major modern health concern (Hayes and Eddy, 1985). Research has shown a strong positive correlation between stress and each of the following: heart disease, hypertension, cancer, tension headaches, eczema, diabetes, peptic ulcer, and allergies and asthma (Papenfuss and Beier, 1984). From an economic perspective, the effects of stress are estimated to cost the nation over \$100 billion annually in lost productivity and medical costs (Winter, 1983).

Selye (1936) identified a three-stage response to stressors which he called the "General Adaptational Syndrome." The three stages are alarm, resistance, and exhaustion. In the alarm stage, the brain recognizes the presence of the stressor and initiates the necessary physiological responses to prepare for action. During the resistance stage, the body confronts the stimulus or attempts to avoid it. If either fight or flight is successful, the body has

adapted and begins to regain homeostasis. If, however, the stressor is not removed or the individual is unable to overcome it, the prolonged exposure results in development of the exhaustion stage. Eventually, the body's adaptation energy is exhausted and disease or even death may result.

There are numerous strategies which can be employed to enhance the individual's ability to cope with stressful life events. Appropriate strategies include effective time management, personal values clarification, development of decision-making skills (recognizing alternatives, consequences, and risks involved in decisions), and development of interpersonal communication skills (Hayes and Eddy, 1984). Crowder (1983) identifies other important coping skills as physical exercise, proper nutrition, relaxation, and meditation.

Physical exercise has proven to be especially effective in helping to reduce stress by lowering the level of adrenal hormones in the blood stream which in turn diminishes the effects of these chemicals on the body (Levy, Dignan, and Shirreffs, 1984). Exercise also stimulates the release of endorphins, chemicals similar to morphine which produce relaxation and exhilaration.

The goal of stress management education is not to shelter the individual from all stressors in life but to assist in the development of effective coping skills. These strategies afford the ability to respond to life's challenges in a positive, constructive way.

## Time Management

Effective time management is accomplished through sound decision-making and planning (OSU Learning Resource Center Guide, 1987). Time management for college students is often best achieved by development of a weekly schedule that allows for success in both academic and leisure activities (Jewler and Gardner, 1987). Although the idea of managing time can generate images of restriction and control, it ultimately gives the individual the opportunity to spend a most valuable resource the way he or she wants. In balancing study hours with leisure hours, it is important to adhere to the schedule, that is, when study time is over, relaxation should be enjoyed as scheduled (Ellis, 1984).

Lakein (1973) suggests implementation of the ABC daily priority system when planning for accomplishment of tasks. A typical day in the life of a student includes many separate, unrelated tasks such as reading, attending lectures, reviewing notes, working at a job, writing papers, research, errands, etc. The ABC system utilizes a daily "to do" list with each task rated by priority. This is accomplished by labeling each task A, B, or C.

A's are those matters that are most important - assignments that are due or jobs that need to be completed immediately. The B tasks are important but not as urgent as A's and can be postponed if necessary (B's might become A's eventually). C priorities do not require immediate attention and are often small, easy jobs.



Ellis (1984) suggests the following techniques for achieving effective time management for college students:

- (1) schedule time realistically beginning with fixed tasks (class or work time) followed by flexible time blocks (study or recreation).
- (2) plan two hours of study time for each hour spent in class
- (3) avoid scheduling marathon study sessions
- (4) be aware of your most productive time of the day
- (5) use waiting time (between classes or appointments) for short study tasks
- (6) plan study sessions at regular times
- (7) agree with roommates about study time
- (8) learn to say no when requests interfere with study
- (9) allow flexibility in scheduling - don't schedule every hour
- (10) to increase productivity, work until you are finished, then do one more small task

Firm commitment is required to follow a time management schedule and master the other techniques discussed above. Developing discipline in these areas will make it easier for the student to balance study hours with leisure hours and enjoy a successful and fulfilling college experience.

#### Aerobic Exercise Programs

Aerobic exercise is defined as sustained exercise at a level that allows the body to meet its oxygen needs continually (Cooper, 1970). Examples include vigorous walking,

running, jumping rope, bicycling, swimming, aerobic dance, and cross-country skiing. Aerobic exercise benefits the body by stimulating the muscular, cardiovascular, and respiratory systems. (Cooper, et al. (1976) concluded that aerobic fitness is related to lower coronary risk factors and the only effective way to achieve cardiorespiratory fitness.

Physical benefits of regular aerobic exercise include: increased functional capacity (oxygen uptake, transport, and utilization); increased ability to mobilize and oxidize fat; increased capacity to oxidize carbohydrate; increased heart size; reduced heart rate; increased blood volume; increased stroke volume and cardiac output; reduced systolic and diastolic blood pressure; increased respiratory function; and reduced serum lipid levels (McArdle, Katch, and Katch, 1986).

Additional benefits of aerobic exercise programs are weight control, stress management, added motivation to stop smoking, and increased self-esteem. Physical exercise, including aerobics, is commonly prescribed as either a primary or secondary treatment made in a variety of therapeutic settings ranging from cardiac rehabilitation to psychiatry (Shaughnessy and Childers, 1986).

As a general rule, aerobic activity as part of a fitness for health plan should be engaged in a least three times per week for at least 20 minutes per session at 70-85% of the individual's maximum heart rate (DeVries, 1980). The

cardiovascular exercise session should include a warm-up period, the aerobic workout, and a cool-down period. The warm-up serves to gradually increase the heart rate from the resting pulse, increase temperature within the muscles, and reduce likelihood of muscle soreness and injury. The cool-down allows the body to gradually return to its starting point, aids the heart in pumping blood from the lower extremities, and assists in cooling the body and minimizing soreness.

Each individual will respond differently to the institution of an aerobic exercise program. Variables to be considered include (1) present physical condition; (2) age; (3) body composition; (4) body weight; (5) nutrition; (6) presence or absence of disease; (7) proneness to injury; (8) motivation and; (9) ability to learn new skills readily (Stokely, Moore, and Moore, 1984). Medical clearance should be obtained before beginning a program and frequency, intensity, and duration of the exercise increased gradually.

### Weight Training

Progressive resistance exercise is a form of exercise in which resistance to exercise movements is gradually and progressively increased. Weight training is one form of progressive resistance exercise and is practiced by competitive weight lifters, athletes seeking to improve performance or recover from injuries, patients in physical therapy, body builders wishing to develop body symmetry and definition, and physical fitness enthusiasts who engage in training

their muscular system as part of a general conditioning program (Hesson, 1985). Although goals and training programs will change as an individual ages, weight training is an effective method of developing and maintaining the muscular system throughout life. In addition to the physical benefits realized from weight training, Hesson (1985) suggests that the activity can contribute to mental, social, spiritual, and emotional development of the individual.

Many participants lift weights to improve physical appearance and self-confidence (Ardel and Tager, 1982). Muscle fiber enlargement or hypertrophy occurs in response to presentation of an overload stimulus (Gollnick, 1983). The primary requirement for initiating muscular hypertrophy is an increase in the force the muscle must generate. The process of hypertrophy is directly related to the synthesis of cellular material, particularly the protein that constitutes the contractile elements of the muscle fiber (Goldberg, 1975). The greatest contribution to hypertrophy is made by the increase in size of existing individual muscle cells (MacDougal, et al., 1984).

Despite similar percentage strength gains in response to weight training shown by women and men, increases in muscle girth are substantially less for women (Hesson, 1985). Researchers have speculated that this is due to the 20 to 30 times higher testosterone level in men which exerts a strong anabolic or tissue-building effect (McArdle, Katch, and Katch, 1986).

Strength training places considerable stress on specific muscles but the activation period is brief and a relatively small mass is used. The cardiovascular and aerobic metabolic demands are small when compared to those activities utilizing large muscle groups such as vigorous walking or running, swimming, and cycling. Traditional strength training exercises alone should not be the focus of a program designed for cardiovascular endurance.

Muscular weakness, especially in the abdominal region, and poor joint flexibility in the back and legs are prime factors related to the low back pain syndrome (McArdle, Katch, and Katch, 1986). Weight training and flexibility exercises are commonly prescribed for the prevention and rehabilitation of chronic low back strain.

### Diet and Nutrition

Nutrition is defined as the science of food and its interaction with an organism to promote and maintain health (Kreutler, 1980). It includes the study of the six broad classifications of nutrients which are protein, carbohydrates, fat, vitamins, minerals, and water. These components are composed to more than 50 specific nutrients (chemical substances obtained from food) and water (McArdle, Katch, and Katch, 1986). Excessive or inadequate consumption of food, as well as dependence on food with low nutritional value, can produce adverse effects on health. Evidence indicates that poor nutrition may be linked to many serious diseases

including heart disease, stroke, and cancer (Winick, 1980).

Carbon, hydrogen, oxygen, and nitrogen are the primary structural units of the majority of the biologically active substances in the body (Kreutler, 1980). Specific combinations of carbon, oxygen, and hydrogen form carbohydrates and fats, where as other combinations with the addition of nitrogen and minerals constitute proteins. Carbohydrates serve (1) as a major source of energy; (2) to spare the breakdown of proteins; (3) as a metabolic primer for fat metabolism; and (4) as the fuel source for the central nervous system (McArdle, Katch, and Katch, 1986). Body fat functions to (1) provide the body's largest store of potential energy; (2) serve as a cushion for protection of vital organs; (3) provide insulation from thermal stress of cold environments, and (4) act as the carrier of the fat-soluble vitamins, A, D, E, and K (Kreutler, 1980). Proteins differ chemically from fats and carbohydrates in that they contain nitrogen in addition to other elements such as sulfur, phosphorous, and iron (Levy, Dignans, and Shirreffs, 1984). Proteins provide the building blocks for synthesis of essentially all of the body's cells and are necessary for cellular repair. Special proteins, called nucleic acids, are found in the nuclei of all cells in the body and are critical in the transmission of hereditary characteristics. Recommended consumption of food stuffs for optimal nutrition is 60% carbohydrates, 30% fats, and 10% proteins (Donatelle, et al., 1986).

The complex carbohydrates (starches) found in the natural foods such as vegetables, cereals, whole grains, and brans are digested and absorbed slowly and provide numerous nutrients needed by the body (Stokes, Moore, and Moore, 1986). Simple carbohydrates (refined sugars) are quickly broken down and absorbed and lack many of the supplemental nutrients found in natural complex carbohydrates (Levy, Dignans, and Shirreffs, 1984).

Most Americans consume between 40% and 50% of their daily intake in the form of fat, much more than is needed (Kreutler, 1980). Vegetable fat contributes about 34% of the average American's daily fat intake, with the remaining 66% coming from animal fat (McArdle, Katch, and Katch, 1986). This high percentage of animal fat increases the amount of saturated fat consumed which has a distinct serum cholesterol-raising effect regardless of the cholesterol content of the diet. Conversely, polyunsaturated fat (found in plant sources) may exert a cholesterol lowering effect (AMA Council, 1983).

Most Americans consume excessive amounts of protein (Stokes, Moore, and Moore, 1986). With the widespread interest in fitness, many people increase protein intake in an effort to enhance performance but research indicates there is no benefit from this practice (Bentivengna, et al., 1979). In fact, metabolism of excessive protein is potentially harmful to liver and renal function (Anderson, et al., 1980).

Plant fiber present in fruits, vegetables, and grains is an important part of a balanced diet (Mendeloff, 1977). It may modify the risk of colon cancer by speeding the time of passage of undigested food through the digestive tract (Mayo Clinic Health Letter, 1987). This may limit exposure of the colon lining to cancer producing chemicals. There is also evidence that dietary fiber may affect blood cholesterol levels by reducing exposure to cholesterol-containing foods.

Fast-food dining is becoming an American institution. It is estimated that by the end of the 1980's, half of all food expenditures will go to fast-food business (Kreutler, 1980). Although fast-food entrees are not without nutritional value, they are very high in fat, salt, sugar, and total calories (Stokes, Moore, and Moore, 1986).

Vitamins are organic substances that neither supply energy nor contribute to body mass but that serve crucial functions in many body processes. Vitamins are important in regulation of metabolism, facilitation of energy release, and bone and tissue synthesis (Kreutler, 1980). Vitamin supplements can reverse the symptoms of vitamin deficiency, but research has not supported the growing use of supplements to improve health or physical performance (Nelson, 1975). Most people receive all the required vitamins they require if a balanced diet is consumed.

Minerals are inorganic substances needed in trace amounts. Unlike vitamins, which activate chemical processes



without becoming part of the products of the reactions they catalyze, minerals tend to become incorporated within the structures and working chemicals of the body (McArdle, Katch, and Katch, 1986). As with vitamins, most people can obtain sufficient quantities of essential minerals by eating a variety of foods, particularly fruits and vegetables.

Sodium intake is only one of many factors related to high blood pressure, but many health authorities have recommended that everyone should reduce salt consumption (Bray, 1980). Others believe that general recommendations to cut back on sodium are inappropriate because the majority of Americans are not at risk of developing hypertension (Tobian, 1979). Whatever the case, American adults consume approximately 20 times the amount of salt they need (Kreutler, 1980).

Eating Disorders. Anorexia nervosa, an eating disorder characterized by an overwhelming obsession with thinness, has emerged as a major health risk for American teenagers, especially females (Donatelle, et al., 1988). If not arrested, this condition can result in death, usually from cardiac arrest.

A closely related eating disorder is bulimia, a disease characterized by uncontrollable cycles of bingeing followed by purging through forced vomiting or the use of laxatives or diuretics. Although bulimia does occur independently of anorexia, between 30 and 50 percent of all anorexics are also bulimic (Donatelle, et al., 1988). Bulimia is

seldom life threatening although it is serious enough to merit attention.

No cure currently exists for anorexia or bulimia although early diagnosis and strong support from family and friends can improve chances of recovery (Donatelle, et al., 1988). Many victims experience a cycle of partial recovery followed by relapse into old habits. As young females are at greatest risk of developing these eating disorders, it is appropriate that colleges provide services for diagnosis and treatment.

In American society today, the major nutritional concern is typically not lack of food, but improper balance of energy and key nutrients in the diet (Kreutler, 1980). Nutritional requirements change during different life stages such as pregnancy and lactation, the growing years, and adulthood. The individual can best avoid suffering nutritional deficiencies while enhancing achievement of nutrition by selecting a varied diet, in amounts appropriate to reach and/or maintain proper body weight.

### Self Concept

Positive self-concept develops from an awareness and acceptance of one's assets and limitations (Breuss and Greenberg, 1988). The college years present many obstacles to individual development and maintenance of a positive concept of self (Donatelle, Davis, and Hoover, 1988). The student may be away from home for the first time and may be learning to cope with anonymity. High school study skills

are often insufficient for college demands and ideas and opinions encountered in college classes may question those previously learned. Students may struggle to loosen familial ties while realizing the security those ties have provided throughout their lives.

Donatelle, et al. (1988) suggests several strategies for developing and maintaining positive self-concept. Suggested positive coping mechanisms include (1) establishment of peer support systems, (2) taking responsibility for control of one's emotions, (3) preparation for successful completion of life tasks, (4) having realistic expectations of oneself, (5) taking time out for recreational activities, (6) maintaining physical health through regular exercise and proper nutrition, and (7) not being afraid to seek help when needed in dealing with problems.

This last consideration is very important in light of the stigma that American society has traditionally placed upon seeking professional help for emotional problems. Many feel that seeking such help is somehow an admission of failure in one's personal life. However, research has shown that individuals who seek counseling on an individual basis or in the form of a support group are much more stable emotionally than those who face their problems alone (Albee, 1985). An increasing number of Americans are turning to mental health professionals for assistance in coping with emotional concerns. In 1986, an estimated 30 percent of the population (80 million people) sought help from mental

health professionals (Donatelle, et al., 1988).

While most students are able to cope successfully with the stresses of college, others engage in maladaptive coping strategies, including suicide. Approximately 1,000 college students commit suicide each year making it the second leading cause of death in this population (Bartley and Belgrave, 1987). Since 1968, the number of suicides of people age 20 to 24 has more than doubled (Levy, Dignan, and Shirreffs, 1984).

#### Study Skill Improvement

Many students enter college lacking necessary study skills and consequently experience a decline in grades as compared to high school performance (Jewler and Gardner, 1987). Once the student has learned the time demands presented by college curricula and basic techniques of time management, attention can be focused upon improvement of study skills.

Learning is accomplished through visual, auditory, kinesthetic, olfactory, and gustatory senses (OSU Learning Resource Center Guide, 1987). Visual and auditory systems are the primary focus of instruction in the university setting.

For the majority of people, the visual sense is of primary importance in learning. Visual learners tend to learn well through reading, watching, or any other activity utilizing sight. Visual people may actually construct mental pictures and associate concepts with different parts of the picture. By later recalling the image they can also recall

desired information.

Auditory learners benefit from concentration on lectures and typically find tape recorders to be very functional tools. Recording lectures frees them from note-taking and provides an opportunity for attentive listening. Notes can also be recorded, thus allowing additional time for listening to important material.

Specific techniques to maximize efficiency in attentive listening, memorization of material, reading a textbook, taking lecture notes, preparing for and writing examinations (both essay and objective), and researching and writing research papers are discussed in the literature (Friday, 1988, Jewler and Gardner, 1987, Ellis, 1984). Students must explore various study skill improvement techniques to ascertain what works best for them.

General but important study skill suggestions which are often overlooked are offered by Jewler and Gardner (1987):

- (1) Sit toward the front of the class. Students situated near the instructor have fewer visual distractions and make better grades.
- (2) Copy down everything written on the board. If it's important enough to appear there it's an important issue and a potential exam item.
- (3) Find a place designated for study and nothing else. This conditions the student to study and only study when in that particular location.

Ellis (1984) offers additional general suggestions:

- (1) Study difficult or boring subjects first, while energy levels are highest.
- (2) Don't get too comfortable--beds, easy chairs, and sofas are "dangerous" places to study.
- (3) Use the library for study--lighting is suitable, noise levels are low, and entrance into the library is a signal to quiet the mind and begin work.

As is the case with learning to manage time, improvement of study skills requires commitment and discipline. It is especially critical that entering students realize the rigors of college academics as early as possible and are given the opportunity to adjust study habits accordingly. Also, students must be made aware of and encouraged to utilize university services such as writing and math resource centers, tutoring, academic advisement, financial aid, and scholarship opportunities.

#### Human Sexuality Education

Human sexuality education focuses on those educational concepts and experiences that influence attitudes toward family living, interpersonal relationships, sexual development, and other aspects of human sexuality (Ohio Department of Education, 1981). Additionally, sexuality education seeks to develop understanding of human needs, a knowledge of physiological and psychological maturation, and an insight into male and female roles and the relationship of these roles in our society.

Our thoughts, feelings, and impressions regarding human sexuality result from the many different experiences we have had throughout our lives (Breuss and Greenberg, 1988). We received input about sexuality from parents, relatives, and friends; from media, churches, and schools. Sexuality is a basic component of human personality and of human health.

Confusion about whether or not to engage in sexual relations is typical among college men and women recently liberated from home and high school (Donatelle, et al., 1988). It is important that students are provided factual, straightforward information in order to develop a healthy concept of human sexuality and be better prepared to make mature, responsible sexual decisions.

Breuss and Greenberg (1988) suggest that self-esteem is the most significant variable in sexual maturation. Burchell (1975) described the relationship of self-esteem to sexuality. He states that low self-esteem weakens interpersonal relationships, whereas high self-esteem provides a foundation for risk taking and growth that is nurturing to any relationship.

Following are suggested appropriate objectives of a human sexuality education program:

- (1) To develop positive attitudes toward one's own sexuality, and an understanding, appreciation, and insight into the roles and relationships of individuals in our society.
- (2) To eliminate fears and anxieties relative to

individual sexual development and adjustments and to offer reliable accurate information related to sexuality.

- (3) To help students understand the changing nature of the physiological and social maturation process as related to human sexuality.
- (4) To develop an understanding and appreciation for personal values which provide rational bases for making decisions.
- (5) To give the individual insight concerning desirable relationships with members of both sexes, and to help each individual understand his/her obligations and responsibilities to others.
- (6) To provide an appreciation for individual and family living and to prepare youth for family living, marriage, parenthood and adult life.

(from: Ohio Department of Education, 1981)

#### Sexually Transmitted Disease Education

Sexually transmitted diseases are infectious diseases that are transmitted during sexual intercourse, homosexual relations, or other sexual activity (Campbell and Herten, 1981). Until recently, illnesses transmitted by sexual activity were called venereal diseases and the two major diseases of concern were syphilis and gonorrhea. The scope of the problem today is much broader. Twenty-eight different viruses, bacteria, fungi, and parasites are known to be



sexually transmitted and now represent the major cause of preventable sterility in the U.S. (Ismach, 1984). At the present rate, the incidence of STDs is expected to double by the year 2000 with more virulent and untreatable strains appearing regularly (Donatelle, et al., 1988). Over 75 percent of reported STDs occur in persons aged 15 to 30 (Breuss and Greenberg, 1988).

Sexually transmitted diseases affect people from all socioeconomic levels, ages, and regions of the world. Proposed reasons for the current high rates of STDs include: (1) the social stigma associated with these diseases which may keep infected persons from seeking treatment, thereby infecting unsuspecting partners if the carriers remain sexually active; (2) asymptomatic carriers who unknowingly spread the diseases, and; (3) casual attitudes towards sex which lead people into sexual activity without considering the consequences (Donatelle, et al., 1988).

Five common STDs are gonorrhea, genital herpes, Chlamydia, syphilis and Acquired Immune Deficiency Syndrome. These diseases pose serious potential harm to those exposed.

In 1985 there were 910,000 reported cases of gonorrhea in the U.S., however, health authorities feel that doubling the number of reported cases yields a more accurate figure of actual incidence (The Health Letter, 1986). One in every 50 teenagers will contract gonorrhea and at least half of all reported cases occur among those under age 24 (Levy, Dignan, and Shirreffs, 1984). Gonorrhea

frequently produces no symptoms (particularly in females) and is a major cause of pelvic inflammatory disease (PID). This disease results in sterility in 100,000 women each year in the U.S. due to scarring of the Fallopian tubes and it can cause ectopic pregnancies (The Health Letter, 1986). Although gonorrhea has traditionally been easily treated with penicillin, an increasing number of strains are resistant to antibiotics.

It is estimated that at least 20 percent of the U.S. population has genital herpes with 300,000 to 500,000 new cases occurring each year (Goldsmith, 1986). The virus is often harbored without causing any symptoms and consequently may easily be transmitted to sexual partners. In addition to the emotional suffering inflicted upon its victims, herpes has been linked to cervical cancer (Nahmias, et al., 1975). Pregnant women with the disease suffer miscarriage at a rate more than three times that of the general population (Campbell and Herten, 1981). When miscarriage does not occur, the birth process may expose the infant to the virus, causing death or irreversible brain damage (Meeks and Heit, 1982). There is no cure for genital herpes at this time.

Chlamydia is a sexually transmitted disease which produces symptoms similar to gonorrhea but is believed to cause up to 50% more infections per year in the U.S. (Ismach, 1984). The Center for Disease Control estimates that over 3 million new cases of Chlamydia occur every year (Goldenring,

1987). It can cause pelvic inflammatory disease and is difficult to diagnose. Once diagnosed, it is easily treated with antibiotics (Mayo Clinic Health Letter, 1986).

Syphilis is often difficult to diagnose because its symptoms resemble those of other diseases. The disease generally follows distinct stages: primary and secondary syphilis, latent syphilis, and tertiary syphilis (Levy, Dignan, and Shirreffs, 1984). Symptoms of the disease change as the stages progress. Syphilis can be cured with antibiotics in the first two stages or even in the latent phase. However, if the disease progresses to the tertiary stage, about one-fourth of all untreated patients become incapacitated by cardiovascular disease or progressive damage to the central nervous system (Boyd and Sheldon, 1977). In 1987, the number of reported cases of syphilis in the U.S. showed an increase (Donatelle, et al., 1988).

Acquired Immune Deficiency Syndrome (AIDS) is a disease in which the body's immune system becomes inoperable and renders the individual unable to effectively fight disease (Byer, Shainberg, and Jones, 1988). The deadly disease is caused by a virus (referred to as the HIV virus) but it is not the virus that directly causes death. Most commonly, Kaposi's sarcoma, a rare form of skin cancer, and Pneumocystis carinii, a form of pneumonia, ultimately kill the patient. AIDS is transmitted by body secretions, most probably during intimate sexual contact (Byer, Shainberg, and Jones, 1988).

Four distinct groups have been identified as being at risk for developing AIDS: (1) homosexual and bisexual males; (2) intravenous (IV) drug users; (3) Haitians; and (4) hemophiliacs, who require frequent blood transfusions (Donatelle, et al., 1988). One of the fastest growing groups is IV drug users, especially heterosexual males. Additional at-risk groups are the sexual partners of any of the above and infants of mothers who have AIDS.

The first documented case of AIDS in the U.S. occurred in 1981 (Donatelle, et al., 1988). By early 1987, over 30,000 cases had been reported, accounting for almost 18,000 deaths. The Center for Disease Control estimates that by the end of 1991, total AIDS cases in the U.S. will exceed 270,000, with 179,000 cumulative deaths as a result of the disease.

When considering the potential dangers of sexually transmitted diseases, it is apparent that education structured to prevent transmission and facilitate recognition of symptoms is critical. Society should realize that any sexually active person is at risk, and that it is the individual's responsibility to take precautions to minimize that risk.

#### Substance Abuse Education

As a result of modern advances in pharmacology, our society has come to view drug use as an effective and convenient way to influence mood (Ray and Ksir, 1987). The

threat that substance abuse presently poses for American youth and how to combat it is the subject of widespread debate. In the 1986 Gallup Poll on education, students aged 13 to 18 identified drug abuse as the number one problem facing the nation's schools (U.S. Department of Education, 1987). The U.S. has the highest rate of teenage drug use of any industrialized nation (U.S. Department of Education, 1987).

Until the 1970's the primary approach to the problem was drug education (Jones and Bell-Bolek, 1986). This strategy focused on teaching about the physiological and psychological effects of drugs, how they are abused, and how abuse affects society. It was assumed that these programs would, in addition to providing education, have the desired effect of creating negative attitudes toward drug use and therefore reduce drug taking behavior.

Research indicates that such programs have in fact failed (Ray and Ksir, 1987). The drug education efforts often employed "fear arousal messages" and lacked credibility. Subsequent evaluation indicated actual increases in the level of drug use by program participants (Jones and Bell-Bolek, 1986).

More recent programs target prevention of any experimentation with or use of drugs in addition to education (Ray and Ksir, 1987). Based on psychosocial approaches, the programs attempt to teach values clarification and specific coping skills to assist young people in resisting

peer pressure to use drugs. Strategies typically employed are peer counseling, role playing and modeling to teach specific techniques for resisting social pressures, and the use of social contracts (commitments not to use drugs). Early evaluation of these strategies indicates reduced onset of drug use at significant levels although in many cases measurement of efficacy has been difficult due to methodological and analytical problems (Jones and Bell-Bolek, 1986).

Researchers agree that the home environment and the family unit are the key to preventing drug use and abuse (Hafen and Frandsen, 1985). It might be argued that substance abuse education would therefore not be appropriate in a university student wellness program since students have already been influenced by the family and are in fact breaking familial bonds. However, there are persons who begin drug abuse at a comparatively late age and research indicates that those who initiate use very early (under age 15) or late (after age 24) are those who tend to develop the most dysfunctional patterns of abuse (Jones and Bell-Bolek, 1986). Substance abuse education therefore appears appropriate in the university setting since problems of abuse can surface during virtually any stage of life.

#### Substance Abuse Intervention

According to Jones (1984), an individual has an alcohol or drug related problem when one or more of life's functional

areas such as health, family, or job is repeatedly impaired by the use of a chemical. There are no proven intervention techniques that can be applied to the total substance-abusing population (Jones, Shainberg, and Byer, 1979). Medical and behavioral methods of treatment are highly varied in approaches and results, with program success ultimately depending upon the motivation of the individual. In addition, goal definition and outcome evaluation in substance abuse intervention are often the subject of controversy. Some programs view total abstinence as the only acceptable goal while others tolerate controlled use (Ray and Ksir, 1987).

In chronic stages of substance abuse or in overdose situations, withdrawal symptoms may be present which call for medical intervention. Initial medical treatment seeks only to get the individual over the immediate danger such as respiratory depression in cases of acute alcohol poisoning. The next consideration is to allow the drug to clear the system (detoxification) while treating withdrawal symptoms if present. Once the primary medical treatment is completed, long-term medical and/or behavioral intervention approaches are appropriate (Ray and Ksir, 1987).

Drug therapy is the most common medical approach to substance abuse intervention (Jones, et al., 1979). One example of a medical approach is the use of methadone maintenance in the treatment of narcotics addiction. The goal is to establish a return to normal social functioning and

eliminate the preoccupation with obtaining more illicit drugs. Another is the prescribing of disulfiram (Antabuse) in the treatment of alcohol abuse. This drug interferes with the normal metabolism of ethyl alcohol and produces severe ill effects if the patient drinks after its ingestion.

Behavioral approaches to substance abuse intervention usually include single and/or group psychotherapy (Rhoads, 1987). Treatment facilities usually offer clinical services if initial medical treatment is necessary followed by counseling to facilitate behavior modification. A typical program begins with a well-planned confrontation of the substance abuser by family and/or friends. The patient is then admitted into a 30 day inpatient program which includes individual, group, and family counseling. Aftercare is also planned since recovery is considered ongoing for some time.

The National Institute on Alcohol Abuse and Alcoholism has estimated that between 9 and 10 million adult Americans are either alcoholics or problem drinkers (DDHS, 1980). Alcoholics Anonymous, which emphasizes group support and views total abstinence as the only appropriate goal, has reached and helped more individuals than any other treatment method (Ray and Dsir, 1987).

Due to the increased consumption of cocaine occurring in the 1980's, the U.S. has seen a rise in the number of people seeking treatment for cocaine dependency. Cocaine overdose is potentially lethal, and medical treatments are being developed to deal with acute emergencies. The American



College of Emergency Physicians implicates cocaine in occurrences of sudden death and suicide and has termed the drug "medically dangerous" (Levy, Dignan, and Shirreffs, 1984).

As with other substance abuse treatment programs, the failure rate of cocaine treatment is high. It will be several years before the effectiveness of different approaches to cocaine dependency can be evaluated (Ray and Ksir, 1987).

### Personal Safety Awareness

Self-responsibility is vital for development and maintenance of sound personal safety habits. Only the individual can alter his/her lifestyle and environment to minimize the possibility of accidental injury or death.

The leading cause of morbidity among college students is accidents (Stokely, Moore, and Moore, 1986). Many of the accidental injuries and deaths in the U.S. involve the use of alcohol. Weston (1980) reported that 58% of fire deaths, 50% of fatal automobile accidents, 45% of drownings, 22% of home accidents, and 20% of fatal private aircraft accidents are alcohol related. The high rate of alcohol use among college students puts them at added risk of falling victim to such accidents.

Home fires make up only 25% of all fires but they account for 76% of the approximately 7,000 annual fire deaths (Mayo Clinic Health Letter, 1987). Smoke detectors alone could reduce home fire deaths by about 50 percent and are the most effective means of providing fire safety in the

home (American Red Cross, 1986).

The issue of drunk driving and how to combat it has become the focus of national attention (Ray and Ksir, 1987). Still, it is estimated that drunk drivers kill over 25,000 people per year on U.S. highways. Automobile accidents are responsible for more deaths of people between the ages of 15 and 24 than all other causes combined (Levy, Dignan, and Shirreffs, 1984).

Another important component of personal safety is that of seat belt usage. It is estimated that universal seat belt use could decrease the number of serious injuries and fatalities by at least 60 percent (Robertson, cited in Goldbaum, Remington, Powell, Hogelin and Gentry, 1986). However, according to the 1981-1983 behavioral risk factor survey on failure to use seat belts, 75.9% of the U.S. adult population reported they did not buckle up (Goldbaum, et al., 1986).

Each year, 80,000 Americans are involved in a water emergency and nearly 8,000 of them drown (Mayo Clinic Health Letter, 1987). An estimated 75% of drownings occur in the presence of people who do not know how to help. Cardio-pulmonary resuscitation (CPR) instruction has been available to the public since the 1960's and has saved many lives, but instruction in lifesaving techniques should reach a greater segment of the population.

Trips and falls are the leading cause of accidental injury in the home (Mayo Clinic Health Letter, 1988).

However, the U.S. public health service estimates that 40 to 50 percent of all falls can be prevented with practical changes in the home environment.

Chronic exposure to ultraviolet rays of the sun is implicated in the development of skin cancers such as melanoma, a potentially fatal cancer (Mayo Clinic Health Letter, 1987). Its frequency has doubled over the last 20 years and about 14,000 cases were forecast for 1987. Sunscreens which block out the sun's damaging ultraviolet rays can be applied before and during periods of exposure.

Severe weather is a potential threat to personal safety. Thunderstorms present a number of potential dangers including heavy rains (and possible flooding), strong winds, hail, and lightning. There are precautionary measures which should be taken when confronted by any of these conditions (American Red cross, 1986). Lightning is especially dangerous and kills or injures more people than any other natural hazard in this country. Other potential dangers exist such as earthquakes, hurricanes, tornados, gas leaks, power failures, air pollution, toxic waste pollution, and radiation leaks. It is the responsibility of the individual to assess his or her environment and prepare for dealing with emergency situations.

#### Heart Attack Risk Reduction

As stated previously, beginning at age 30 for men and age 40 for women, coronary heart disease (CHD) is the single

largest cause of death in the Western world and kills twice as many people as cancer (McArdle, Katch, and Katch, 1986). In the U.S. alone, CHD is responsible for more than 500,000 deaths annually (Mayo Clinic Health Letter, 1988). Various risk factors have been identified that appear to increase susceptibility to the development of CHD including: (1) age and gender; (2) elevated blood lipids; (3) hypertension; (4) cigarette smoking; (5) physical inactivity; (6) obesity; (7) diabetes; (8) diet; (9) heredity; (10) personality and behavior patterns; (11) high uric acid levels; (12) pulmonary function abnormalities; (13) race; (14) electrocardiographic abnormalities during rest and exercise; and (15) tension and stress (from McArdle, Katch, and Katch, 1986).

Such risk factors as age, sex, heredity, and race cannot be modified. However, blood lipid abnormalities, obesity, cigarette smoking, diabetes, physical inactivity, and hypertension can be controlled to some extent by lifestyle modification or drug therapy.

Hyperlipidemia (an increased level of fats in the blood) is linked with increased incidence of CHD (DeVries, 1980). This condition results from the accumulation of cholesterol-containing plaque in the walls of the coronary arteries. The resulting obstruction to blood flow and increased chance of clot formation at the narrowed site can result in heart attack (myocardial infarction). The causes of this plaque formation (atherosclerosis) are complex but evidence indicates that modifications of diet and exercise habits and/or drug

therapy can be effective in treating blood lipid abnormalities (McArdle, Katch, and Katch, 1986).

Existing evidence fails to establish a casual relationship between obesity and heart disease but suggests a co-dependent relationship with such factors as hypertension, diabetes, hyperlipidemia, and cigarette smoking (Hubert, et al., 1983). A strong association between body fatness per se and the degree of atherosclerosis has not been observed in autopsy studies (Spain, et al., 1963). However, research indicates that obese individuals often exhibit hypertension and elevated blood lipid levels (Hubert et al., 1983). Reduction in body fat generally normalizes cholesterol and triglyceride levels and has beneficial effects on blood pressure and adult onset diabetes (McArdle, Katch, and Katch, 1986). It therefore appears that, although obesity may not be a primary risk factor, it is a secondary and contributing factor in the development of CHD.

Cigarette smoking increases heart rate, raises blood pressure, and produces vasoconstriction, making the probability of death from heart disease for one pack-a-day smokers twice as great as for non-smokers (U.S. Public Health Service, 1981). Encouragingly, if smoking is stopped the risk of CHD usually returns to that of non-smokers (Friedman and Siegelau, 1980).

Diabetes results when adequate amounts of glucose fail to enter cells resulting in abnormally high blood glucose levels. Although diabetes cannot be cured, it can be

controlled by diet modification, weight control and exercise programs, and drug therapy. This disease has been associated with the development of arteriosclerosis (Kannel and McGee, 1979).

The data on the relationship between physical inactivity and CHD is inconclusive, but there is definitely no evidence to suggest that prudent use of exercise is harmful. Conversely, human and animal research indicates that regular exercise may operate against CHD by improving myocardial circulation and metabolism, enhancing the contractile properties of the myocardium, normalizing the blood lipid profile, favorably altering heart rate and blood pressure, improving body composition, and providing an outlet for stress and tensions (McArdle, Katch, and Katch, 1986).

Hypertension (high blood pressure) is often called "the silent killer" because noticeable symptoms are rarely present among those suffering from the disease. An estimated 60 million American adults have high blood pressure (Mayo Clinic Health Letter, 1987). The condition imposes a chronic, excessive strain on the cardiovascular system and is a leading cause of congestive heart failure and development of atherosclerosis. There is no cure for hypertension, but most cases it can be controlled with medication, dietary adjustment, weight control, and moderate exercise (Levy, Dignan, and Shirreffs, 1984). Medications used to treat the condition include diuretics, which reduce blood volume and thereby lower blood pressure; tranquilizers, which calm the central

nervous system; and beta blockers, which reduce peripheral resistance to blood flow. Hypertensive individuals are advised to restrict salt intake since salt causes retention of fluids, increasing blood volume and blood pressure.

The Framingham study has supported the theory that hypertension, hyperlipidemia, and cigarette smoking are all associated with increased risk of heart disease (Dawber, 1980). The study has also reported that regular exercisers are more likely to survive a heart attack than sedentary victims.

#### Summary

The literature was reviewed concerning the wellness concept, the various dimensions of wellness, and the 15 topic areas included on the wellness program curriculum needs assessment utilized in this study. The Oklahoma State University wellness program model was also described.

Attainment of individual well-being and establishment of lifestyle patterns that promote this well-being throughout life are the goals of wellness. The concept is a multi-dimensional one which targets emotional, intellectual, physical, social, occupational, and spiritual development of the individual. Basic to the wellness concept is the assumption of individual responsibility for personal well-being.

The Oklahoma State University wellness program model consists of assessment, education, intervention, and

facilitation phases. Individual and/or group counseling are key to each phase. The various wellness topic areas were reviewed to establish support for their inclusion on the needs assessment utilized in the study.



## CHAPTER III

### METHODOLOGY

The purpose of this study was to identify those components of wellness in which Oklahoma State University students desire information and education. Recommendations will then be made to the programming committee of the OSU Wellness Task Force to assist in effective planning of program curriculum.

This chapter will discuss the instrumentation, preliminary procedures, operational procedures, and research design and statistical analysis of the data from this study.

#### Instrumentation

The instrument used in the study was a written questionnaire utilizing a Likert scale (see appendix A). The questionnaire was generated after reviewing health assessment questionnaires and health risk appraisals already in existence (Payne and Hahn, 1986; National Wellness Institute, 1980; General Health, 1985; Hall, 1984). Input from Oklahoma State University faculty was also considered before completing the instrument. The format used for the questionnaire was original.

In addition to the Likert scale, which measured degree of interest in 15 wellness topic areas, one open-ended question

allowing mention of additional areas of interest for education was included. Also, a cover letter explaining the study and a consent form accompanied the questionnaire (see appendix A).

#### Preliminary Procedures

Applications for participation in the OSU Student Wellness Program Pilot Project were placed in residence halls, the Student Union, the Colvin Center and the Daily O'Collegian (the student newspaper) at OSU and 804 applications were returned. A stratified random sample of 150 students for this study was selected from the pool of applicants for participation in the pilot project. The sample was stratified to include 15 females and 15 males from each grade classification: freshman, sophomore, junior, senior, and graduate.

The proposal for the study was approved by the Institutional Review Board at OSU. A consent form was signed by each participant.

#### Operational Procedure

The cover letters, questionnaires, and consent forms were delivered to central mailing on the OSU campus for distribution on January 19, 1988. The materials were mailed to the students' home addresses and stamped and addressed for return. A reminder was mailed to those not responding after ten days in an effort to maximize the response rate.

## Research Design and Statistical Analysis

The research design used in this study was a comparative survey. The data were analyzed at OSU using the IBM 3081-D System with SPSS software.

A frequency distribution was generated to tabulate the total sample preference for selection of wellness components for further education. A t-test was utilized to compare means of responses from male and female subjects using the .05 level of significance. A oneway analysis of variance was utilized to compare differences among age groups at the .05 level of significance. Age groups were generated by dividing the total responses (n=78) by three to yield three groups of 26 subjects. Group I consisted of 26 subjects aged 18 to 21; Group II, 26 subjects aged 22 to 26; Group III, 26 subjects aged 27 and above. The Newman-Keuls multiple range test was used for means comparison following the oneway analysis of variance.

## CHAPTER IV

### RESULTS AND DISCUSSION

#### Results

Of the 150 instruments mailed for the survey, a total of 78 usable ones (50.2%) were returned. Analysis of the total sample by age, grade classification, and gender is shown in Table I.

A frequency distribution displays total sample preference for selection of wellness components for further education (Table II). The areas of greatest interest were diet and nutrition, aerobic exercise programs, weight training, and stress management. These components all generated Likert scale means of 2.0 or less on the needs assessment indicating that the average subject would likely participate in wellness education programming addressing the particular areas.

A t-test analysis compares means of significantly different selection responses of male and female subjects (Table III). The t-test showed no significant differences in means of responses from male and female subjects except for the variables of weight control ( $t=-3.32$ ,  $p < .01$ ), aerobic exercise programs ( $t=-3.32$ ,  $p < .01$ ), and substance abuse intervention ( $t=2.13$ ,  $p < .05$ ). Thus  $H_1$ , stating that there would be no significant differences between males and females

in selection of wellness components for further education at ( $p < .05$ ), was rejected. Results of the oneway analysis of variance (Table IV) revealed no significant differences among age groups on any of the variables except self-concept ( $F_{2,75} = 3.12$ ,  $p < .05$ ) for which Group I was significantly different from Group III. Thus,  $H_2$ , stating that there would be no significant differences among age classifications in selection of wellness components for further education at ( $p < .05$ ), was rejected.

#### Discussion

The frequency distribution reveals total sample preference for selection of wellness components for further education and merits consideration in wellness program curriculum planning. This information could be utilized to identify areas greatest interest and assist in effective class scheduling, staff assignment, and spatial considerations for particular activities.

The t-test showed that female subjects were more interested than male subjects in weight control and aerobic exercise programs, while males were more interested than females in substance abuse intervention. However, the mean differences do not appear to be of practical significance and need not be considered in wellness program curriculum planning. On the four-point Likert scale utilized in this study, the mean differences were too small to indicate obvious differences between genders in degree of interest

in the respective wellness components.

The oneway analysis of variance revealed that Group I, the youngest group (age 18-21) was less interested in development of self-concept than Group III, the oldest group (age 27 and above). However, the differences of interest in the variable of self-concept do not appear to be practically significant and need not be considered in wellness program curriculum planning. Again, on the four-point Likert scale, the differences were too small to indicate obvious differences among age groups in degree of interest in development of self-concept. It is interesting to note, however, that the oldest group was more interested in development of self-concept than the youngest group. This was somewhat surprising as younger students would seem more likely to have concerns related to self-concept as they are facing adjustment to college and development of autonomy. However, the literature presents evidence that older students may face many serious obstacles in development and maintenance of positive self-concept. Generally, older students feel out of place, lack self-confidence, have poor study skills, and avoid seeking assistance from available campus services (Kuh and Sturgis, 1980). Major life commitments are being delayed, placing the students in a state of waiting (Taylor, 1975). Many graduate students report feelings of loneliness, frustration, and hostility which can affect academic performance (Grites, 1982).

In summary, then, the simple frequency distribution

appears to have the most relevance in contributing to effective wellness program curriculum planning. Although significant differences existed between genders and among age groups in selection of wellness components for further education, these differences were not deemed practically significant.

TABLE Ia  
 FREQUENCY DISTRIBUTION OF  
 TOTAL SAMPLE BY AGE

Age	Frequency	Percent
18	6	7.7
19	7	9.0
20	10	12.8
21	3	3.8
22	5	6.4
23	10	12.8
24	6	7.7
25	4	5.1
26	1	1.3
27	3	3.8
28	1	1.3
29	3	3.8
31	3	3.8
32	2	2.6
33	2	2.6
34	1	1.3
35	1	1.3
36	1	1.3
37	2	2.6
38	2	2.6
39	1	1.3
41	2	2.6
44	1	1.3
53	1	1.3
TOTAL	78	100.0



TABLE 1b  
 FREQUENCY DISTRIBUTION OF TOTAL SAMPLE  
 BY GRADE CLASSIFICATION

Grade Classification	Frequency	Percent
Freshman	12	15.4
Sophomore	16	20.5
Junior	14	17.9
Senior	15	19.2
Graduate	21	26.9
TOTAL	78	100.0

TABLE 1c  
BREAKDOWN OF TOTAL  
SAMPLE BY GENDER

Gender	Frequency	Percent
Female	40	51.3
Male	38	48.7
TOTAL	78	100.0

TABLE II  
TOTAL SAMPLE PREFERENCE FOR SELECTION  
OF WELLNESS COMPONENTS FOR  
FURTHER EDUCATION

Variable	Likert Scale Mean	Standard Deviation
Diet & Nutrition	1.76	± .742
Aerobic Exercise	1.91	± .900
Weight Training	1.99	± .933
Stress Management	2.00	± .837
Weight Control	2.10	± .948
Time Management	2.22	± .800
Self-Concept	2.26	± .859
Heart Attack Risk	2.44	± 1.014
Personal Safety	2.45	± .962
Study Skill Improvement	2.53	± .963
Human Sexuality Education	2.53	± .936
STD Education	2.68	± .890
Substance Abuse Intervention	3.14	± .908
Substance Abuse Education	3.17	± .813
Smoking Cessation	3.68	± .730

TABLE III  
SIGNIFICANTLY DIFFERENT VARIABLE  
SELECTION MEANS BY GENDER

Variable	Female Responses Mean      Standard Deviation	Male Responses Mean      Standard Deviation	t Value
Weight Control	1.8 ± 0.88	2.4 ± 0.92	<sup>a</sup> -3.04
Aerobic Exercise Programs	1.6 ± 0.71	2.2 ± 0.92	<sup>a</sup> -3.04
Substance Abuse Intervention	3.4 ± 0.80	2.9 ± 0.97	<sup>b</sup> 2.13

<sup>a</sup> p < .01

<sup>b</sup> p < .05

TABLE IV  
 ONEWAY ANALYSIS OF VARIANCE COMPARING DIFFERENCES  
 AMONG AGE GROUPS FOR VARIABLE OF SELF-CONCEPT

Group	Variable: Self-Concept	
	Mean	Standard Deviation
1	$\bar{X} = 2.56$	$\pm .70$
2	$\bar{X} = 2.12$	$\pm .85$
3	$\bar{X} = 2.0$	$\pm .94$

  

Analysis of Variance				
Source	D.F.	Sum of Squares	Mean Squares	F Ratio
Between Groups	2	4.49	2.24	@3.21
Within Groups	75	+52.38	.70	
Total	77	=56.87		

@p <.05

## CHAPTER V

### SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

The purpose of this study was to identify those components of wellness in which Oklahoma State University students desire information and education.

The subpurposes of this study were to: (1) identify differences between genders in selection of wellness components for further education, and (2) identify differences among age groups in selection of wellness components for further education.

The study consisted of a comparative survey utilizing a Wellness Program Curriculum Needs Assessment. The results were presented by total sample preferences, significantly different responses between genders, and significantly different responses among age groups in selection of wellness components for further education.

#### Findings

The study generated a total sample preference of selection of wellness components for further education which could be used to assist in planning of wellness

programming. Areas of greatest interest were diet and nutrition, aerobic exercise programs, weight training, and stress management.

A t-test revealed significant differences between genders in selection of wellness components for further education for the variables weight control, aerobic exercise programs, and substance abuse intervention. Thus  $H_1$ , which stated that there would be no significant differences between males and females at ( $p < .05$ ) in selection of wellness for further education, was rejected. Females were more interested than males in weight control and aerobic exercise programs, while males were more interested than females in substance abuse intervention.

A oneway analysis of variance revealed significant difference among age groups in selection of the variable self-concept for further education. Thus  $H_2$ , which stated that there would be no significant differences among age groups at ( $p .05$ ) in selection of wellness components for further education, was rejected. Interestingly, the youngest and oldest age groups differed significantly in self-concept interest with the older group showing more interest than the younger group.

### Conclusions

Within the limits of this study, it can be concluded that college students do have preference for selection of wellness components for further education. The total sample

preference frequency distribution is the only data generated by the study with practical significance and is the only data which should be applied to wellness program curriculum planning. Neither gender or age were established as being important variables in selection of wellness components for further education as part of a student wellness program.

#### Recommendations

This study surveyed a sample which was deliberately selected from a pool of volunteers for a student wellness program pilot project. The proposed permanent Wellness Center at Oklahoma State University will be available to faculty, staff, and students. It is therefore recommended that a random sampling of faculty, staff, and student populations indicating an interest in participation in a wellness program be conducted to assess their needs in regard to wellness education.

Useful information which was not obtained by the instrument developed for this study would be identification of the most appropriate meeting times and locations for wellness classes. Limited programming which was offered as part of the pilot project suffered from poor attendance, perhaps due to the times classes were offered and/or the fact that the location of the class offerings (Colvin Center) is not centrally located on campus. The proposed Wellness Center would be the logical location for classes, but a more central campus location (such as the Student Union)



might be appropriate for selected classes covering topics with a high degree of interest.

In an effort to increase the response rate on a survey such as the one conducted in this study, it is recommended that the instrument be administered to the sample in person at an appropriate time in the project. For example, this study would likely have achieved a better response rate had the assessment been given to the students at the time of their physical assessment during the pilot project. However, it was felt that the students were not knowledgeable enough about wellness components at that time to respond accurately to the survey, and at no other point in the study were they assembled.

It would be useful to compare differences among both ethnic groups and differing socioeconomic levels in selection of wellness components for further education. Results could prove to be beneficial in anticipating special programming needs of members of these groups if significant selection differences were observed.

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APPENDIX A

QUESTIONNAIRE, CONSENT FORM AND COVER LETTER

OKLAHOMA STATE UNIVERSITY

DEPARTMENT OF HEALTH, PHYSICAL EDUCATION AND LEISURE SERVICES

PART I: Wellness Program Curriculum Needs Assessment

Please circle the response which best indicates your degree of interest in participation in classes and seminars addressing the following components of wellness. Please select a response for each topic area:

	Definitely Would Participate	Probably Would Participate	Probably Would Not Participate	Definitely Would Not Participate
1. Weight Control	1	2	3	4
2. Smoking Cessation	1	2	3	4
3. Stress Management	1	2	3	4
4. Time Management	1	2	3	4
5. Aerobic Exercise Programs	1	2	3	4
6. Weight Training	1	2	3	4
7. Diet and Nutrition	1	2	3	4
8. Self-Concept	1	2	3	4
9. Study Skill Improvement	1	2	3	4
10. Human Sexuality Education	1	2	3	4
11. Sexually Transmitted Disease Education	1	2	3	4
12. Substance Abuse Education	1	2	3	4
13. Substance Abuse Intervention	1	2	3	4
14. Personal Safety Awareness	1	2	3	4
15. Heart Attack Risk Reduction	1	2	3	4

Other educational areas which you feel should be included in the wellness program:

PART II: Personal Information

Classification:      GRAD      SR      JR      SOPH      FR

Age:     

Gender:      Female      Male

January 18, 1988

COVER LETTER

Dear Student Wellness Pilot Project Participant:

Thanks again for your participation in the Student Wellness Pilot Project. Assessment of the 150 subjects selected for the pilot has been completed. We are now in the process of planning wellness classes to be offered to program participants and other interested students during the spring semester.

I am working on my Master's degree and would greatly appreciate your assistance in my research. My study is designed as an assessment of students' educational needs to assist in the wellness program curriculum development. Enclosed you will find a consent form and questionnaire. **PLEASE READ, DATE AND SIGN THE CONSENT FORM AND FILL OUT THE QUESTIONNAIRE COMPLETELY.** A metered envelope is enclosed for the return of both forms.

Thank you very much for your cooperation and assistance with this research.

Yours Sincerely,

Bob Kline  
Research Assistant  
OSU/Department of HPEL

CONSENT FORM

INDIVIDUAL'S CONSENT FOR PARTICIPATION  
IN A RESEARCH PROJECT

I, \_\_\_\_\_, voluntarily agree to participate in  
(subject)  
this study entitled: A Needs Assessment of University Students for Wellness  
Program Curriculum Planning.

The purpose of this investigation is to identify those components of  
wellness in which students most desire further information and education.  
Information obtained from the survey will be used to assist in effective  
planning of appropriate class offerings as part of an OSU student wellness  
program. The study will be a comparative survey utilizing a written  
questionnaire.

No risks or discomforts are foreseen for any subjects taking part in  
this research. A definite benefit to all subjects is that, through participation  
in the study, an ongoing service to all OSU students will be structured.

By signing this consent form, I acknowledge that my participation in  
this study is voluntary. I also acknowledge that I have not waived any  
of my legal rights or released this institution from liability for negligence.

I may revoke my consent and withdraw from this study at any time without  
penalty or loss of benefits. My treatment by, and relations with the  
physician(s) and staff at Oklahoma State University, now and in the future,  
will not be affected in any way if I refuse to participate, or if I enter  
the program and withdraw later.

Records of this study will be kept confidential with respect to any written  
or verbal reports making it impossible to identify me individually.

If I have any questions or need to report an adverse effect about the  
research procedures, I will contact the principal investigator, Bob Kline,  
or colleagues by calling (405)624-5509 during a workday or (918)387-4265  
at night or on weekends.

If I have any questions about my rights as a research subject, I may  
take them to the Office of University Research Services, Oklahoma State  
University or contact Steve Stone, Coordinator of University Research  
Services, 001 Life Sciences East, (405)624-6993.

_____	_____
Date	Subject
_____	_____
Date	Witness
_____	_____
Date	Investigator

VITA <sup>2</sup>

Robert Lowell Kline

Candidate for the Degree of

Master of Science

Thesis: A NEEDS ASSESSMENT OF UNIVERSITY STUDENTS FOR  
WELLNESS PROGRAM CURRICULUM PLANNING

Major Field: Health, Physical Education, and Recreation

Biographical:

Personal Data: Born in Cushing, Oklahoma, October 3,  
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Education: Graduated from Cushing High School, Cushing  
Oklahoma, May, 1969; received Bachelor of Science  
in Wildlife Ecology from Oklahoma State University  
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Professional Experience: Graduate Teaching Assistant,  
Department of Health, Physical Education, and  
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August, 1986 to June, 1987; Research Assistant,  
Department of Health, Physical Education, and  
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