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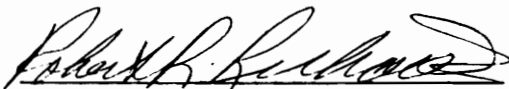
THE EFFECTS OF A STRUCTURED WELLNESS
PROGRAM ON PHYSICAL AND MENTAL WELL-BEING
OF PUBLIC SCHOOL TEACHERS AND STAFF MEMBERS

by

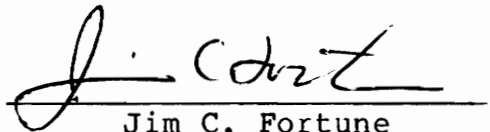
Glenn L. Koonce

Dissertation submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of
DOCTOR OF EDUCATION
in
Educational Administration

APPROVED:



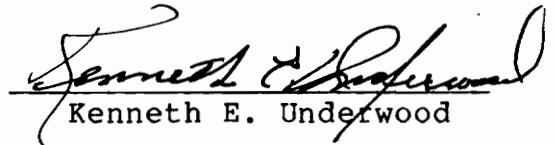
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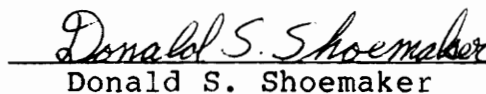
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THE EFFECTS OF A STRUCTURED WELLNESS
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(Abstract)

This study was conducted to investigate the effects of a four component worksite wellness program on elementary public school teachers and staff members. Fifty-nine volunteers from one elementary school were divided into two groups depending on their availability for participation in either a fall or spring twelve week wellness program. The four intervention components were aerobics, health-related seminars, health-related pamphlets and handouts, and the Governor's (Virginia) Physical Fitness Award Program for School Personnel.

The dependent variable measures for mental well-being included: the General Well-Being Schedule; the Trait Anxiety Subscale of the State-Trait Anxiety Inventory; and the Brayfield and Rothe Job Satisfaction Index. The following physiological measures were recorded for physical well-being: resting blood pressure, resting heart rate, and skinfold calibrations.

Treatment effects were analyzed by t-test for significant differences. The alpha was set at the .05 level. The

effects of treatment delayed was determined by frequency counts and cross-tabulation.

There were no statistically significant differences found for any mental well-being measure. Lack of statistically significant differences were also indicated for resting heart rate recordings and skinfold calibrations. There was a statistically significant difference in systolic ($t = -2.01, p > .05$) and diastolic ($t = -2.01, p > .05$) blood pressure measurements. This difference is perceived to be attributed to the training effect found in the aerobex component of the treatment. Lack of statistically significant findings obstructed the opportunity to replicate conclusive findings. The statistically significant differences found for resting blood pressure measurements failed to achieve the same status in the replication. Participation in treatment activities twelve weeks following extinction failed to meet the paradigm established, but the results indicated almost half (47.3%) of the participants from Group 1 were still involved in wellness activities three months after their program ended.

Although most of the dependent measures failed to achieve statistically significant outcomes, it was concluded from the literature review and documented empirical research that the rationale for implementing wellness programs at the worksite is a prudent endeavor. It is recommended that the treatment be more comprehensive and

activity oriented, the dependent variable measures be more sensitive to treatment effect, and that the time span for intervention be expanded.

ACKNOWLEDGEMENT

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CHAPTER I

INTRODUCTION

"The health of nations is more important than the wealth of nations." - Will Durant (AAFBDI,1983)

The nature of work - and life in general - has become increasingly sedentary in the United States. Men and women who spend their days in a 20th-century workplace, laced with all the modern conveniences, face a dire assortment of degenerative diseases. This environment is not meeting their physiological needs, particularly in regards to the muscular and cardiovascular systems. The workplace is all too often a bleak environment for the attainment of physically fit employees (President's Council On Physical Fitness and Sports, 1980).

Enlightened management can fight back. An active program of health awareness and physical activity can improve employee's quality of life and state of health (Lewis, 1983). A healthy organization implies the employees are at their worksite and can function according to appropriate job descriptions. Employees represent 100% of the effectiveness of any enterprise. They are the individuals who "run the machines, maintain the equipment, program the computers, use the supplies, greet the customers, face the competition, control the quality of the product or service",

and they are the individuals who administer our public schools and teach our children (AAFBDI, 1983).

In recent years, businesses throughout the United States have implemented health education or health promotion programs to achieve a two-fold goal: (1) "help keep employees healthy"; and (2) "help contain long-term health care costs" (Yenney, 1984). The worksite is an appropriate setting for health promotion programs. Management has grown cognizant of the relationship of employee health and fitness to increased absenteeism, decreased productivity, higher health and disability insurance costs, and premature death. As the wellness concept becomes more apparent to management level administrators, an accelerating growth rate for health promotion programs will result (Felding, 1980).

The wellness concept is synonymous with health promotion and deals specifically with preventing an illness rather than trying to cure it. Training individuals to stay healthy is less expensive than providing treatment once they become sick. A longer and more productive life can be attained if proper lifestyle attitudes are developed before a personal habit becomes destructive. "Prevention" is the key consideration before the detrimental aspects of an unhealthy lifestyle break-down the body's ability to combat degenerative changes. Prevention philosophy is promoted in wellness programs (Polakoff, 1982).

The wellness movement is a comprehensive approach to health care that goes beyond the mere treatment of disease. The approach is directed specifically to health promotion and maintenance (McGill, 1979). Healthier employees:

"Get more out of their personal and business lives.
 Enjoy life more.
 Have a better attitude toward work and play.
 Have a happier home life.
 Have less illness and fewer accidents.
 Miss fewer days of work.
 Enjoy their home more.
 Cope with stress better, at work, at home, and at play.
 Take care of themselves by following good health habits, getting enough rest, exercising, and eating the right foods"
 (AAFDBI. 1983).

An excellent opportunity to pursue worksite health activities is to implement wellness programs for our nation's public school employees. At four million strong, they represent the largest employee group in the country. Improvement in their health would significantly affect the health care cost to our nation. This major point is overshadowed by the fact that educators are "role-models" to school children, providing an enormous "influence on the behavior of young people in their formative years" (Health Education Reports, 1985). A significant initiative to school employee health promotion is the recent publication Wellness At The School Worksite (Health Insurance Association of America and the American Council of Life Insurance, 1985). This manual stresses that "a school staff that practices wellness, will by its example, provide one of the

most effective ways of developing good health habits in pupils." A commitment by educators to role model wellness lifestyles can be the most beneficial and long lasting effort in improving our nation's health habits. This improvement will directly affect the country's enormous health care costs (Health Education Reports, 1985).

As role models, school staff members produce lasting influences on children's goals, values, and personal habits. This factor alone is more powerful than any health related lesson found in the school's curriculum guide (Health Insurance Association of America and the American Council of Life Insurance, 1985).

A key rationalization for school employee wellness programs was offered by former Health and Human Services secretary, Richard S. Schweiker and Health Insurance Association of America president, James L. Morefield. In a joint letter to their members they stated,

"Wellness/health promotion programs will improve school staff morale and productivity. That means not only better use of taxpayer dollars, but also an improvement in the quality of education" (Health Education Reports, 1985).

Schweiker and Morefield's statement implies that through improved morale and increased productivity, an improvement in instructional quality will result due to more teacher time on task with students.

Mike J. Tage, M.D., made a critique in an article written for The School Administrator. His message was

directed to those who make the decisions for school staff development programs and was intended to focus on a starting point for worksite wellness. He said,

"Chances are your school district is not unlike the national average:
One in six of your employees has hypertension;
One in ten has problems with alcohol or drugs;
Half are obese;
Almost a quarter of your male employees will die of cardiovascular disease before age 65"

(Health Insurance Association of America and The American Council of Life Insurance, 1985).

Wellness/health promotion, especially at the school worksite is a new field of study and research. Charles Barbour (Health Insurance Association of America and the American Council of Life Insurance, 1985) commented on the difficult aspects of evaluating existing wellness programs in a precise manner. He stated:

"...in an educational setting, measures of productivity may be artificial and therefore misleading. Sometimes finding volunteers for control group studies is difficult. Sometimes privacy issues constrain research and analysis. Yet keeping in mind that evaluators face these difficulties and that many real program results (such as improved morale) are intangible, the program administrator will find clear-headed analysis is possible.

Attempts to quantify the human rewards that stem from Wellness at the school worksite programs will probably fall short of creating a precise picture of what has happened. But school building staff will let it be known whether or not the bottom line is success. Judging from national experience in wellness at school worksite programs, the result will be positive."

Barbour's remarks has solidified the opportunity to design a wellness study at a school worksite that purports to measure attitudes in the evaluation of a successful program. Barbour includes subjective comments, specifically, "changes in attitude", as one of the factors to consider in an evaluation of School Worksite Wellness programs (Health Insurance Association of American and the American Council of Life Insurance, 1985).

With the understanding that attitudes are an "intangible" analysis measurement, the ensuing study has been designed to provide a greater understanding of the wellness concept and implications to healthier and more productive employees.

The hypothesis statement is generated from the literature that has shown expectations for positive outcomes. A model worksite wellness program will be developed from research implications and applied to a public school setting. The model will be tested and the results analyzed.

Statement of the Problem

This study has been designed to experimentally investigate the effects of a four-component worksite wellness program on elementary public school teachers, staff members, administrators, and support personnel.

The criteria established to assess the effects of the wellness program are: the General Well-Being Schedule; the Trait-Anxiety Subscale of the State Trait Anxiety

Inventory (STAI); the Brayfield and Rothe Job Satisfaction Index; and physiological data obtained by skin-fold calibrations, resting heart rate readings, and resting blood pressure readings. The data will be analyzed statistically using: a t-test for independent groups to assess the effects of a wellness program on the physical and mental well-being of the participants; a t-test for independent groups to assess the effects of the same wellness program on a different treatment group; and a cross-tab frequency count analysis of the wellness program's effect on the first treatment group after the treatment has been extinct for three months.

Hypothesis and Research Questions

Hypothesis

A twelve week structured wellness program directed at a change in lifestyle will have a significant effect on the personal health attitudes and physiological measurements of elementary school faculty and staff members.

Research Questions

1. A twelve week structured wellness program directed at a change in lifestyle can produce significant changes in physical well-being (as measured by resting blood pressure, resting heart rate, and skin-fold measurements) and mental well-being (as measured by the Trait Anxiety Subscale of

the State-Trait Anxiety Inventory, the General Well-Being Schedule, and the Brayfield and Rothe Job Satisfaction Index).

2. A twelve week structured wellness program directed at a change in lifestyle will produce similar results if replicated with a different group of faculty and staff members.

3. Three months after the extinction of a twelve week structured wellness program 75% of the participants will continue with 90% of the activities identified in the wellness program.

Scope and Methods

This study will investigate the following related topics:

1. A comprehensive review of related literature in order to bring together a base of knowledge about the ever evolving wellness concept.

2. Identification by today's leading health promotion authorities of recommended components necessary for lifestyle changes.

3. Identification of an effective wellness program with components that elementary public school teachers and staff can utilize to produce individual changes.

4. Identification of strategies that management

may pursue in providing health promotion activities for their employees.

5. Identification of the wellness concept and its shared relationship between physical and mental behavioral factors.

6. Identification of effective support systems for individuals who wish to improve personal quality of life.

7. Identification of the importance of teachers being role models for healthy living in the eyes of the children they teach.

The methods to be used in the study are:

1. A review of the literature that deals with the wellness concept and its implications to the school worksite.

2. Seminar attendance, workshop attendance, program participation, interviews, presentations, correspondence, and research conducted by the investigator.

3. The planning, designing, and implementation of a twelve week structured wellness program intended to produce changes in health related activities of faculty and staff members in a large suburban elementary school. The participants will be pretested and posttested for physiological and behavioral factors. The means of each dependent variable will be compared for significant gains for each of the study groups.

4. A controlled quasi-experimental design with one group receiving the treatment modality (twelve week wellness program) and one group being a control factor receiving no treatment. At the conclusion of the twelve week wellness program, the control group will then receive the treatment. The initial experimental group will no longer receive any treatment. Both groups will be pretested once and posttested twice (once following the first twelve week session and again following the second twelve week session). Each group will be tested in the following parameters: job satisfaction; stress; general well-being; and physiological measures (resting heart rate, resting blood pressure, and skin fold measurements).

Significance of the Study

A design and testing model for worksite health promotion at an elementary school could provide answers to the growing concern related to teacher job-connected stress and burnout. This primary concern could be extended to providing valuable information for school administrators and school boards who are perplexed by the rising costs of employee health care, absenteeism, and lost employee productivity. This study could also improve the physical fitness level of school staff personnel.

Worksite wellness programs are vital to employees of all organizations and to the strength of our democratic

free enterprise system. This research will focus on the effectiveness of such a program for public school teachers, staff, administrators, and support personnel.

A structured, four-component approach to health promotion in a public school can provide an enhancement of the health and physical education curriculum goals through the faculty and staff's appropriate healthy role-model behavior. The faculty and staff's actions permeates the community, the home, and effects other school personnel who come into contact with those teachers and staff members who have adopted the wellness lifestyle.

Health promotion activities have been of personal interest to the researcher who has a background in health and physical education and has been directly involved in wellness program development in the school setting, in the community, and on a state-wide basis. These varied experiences, along with recent research, will be incorporated in establishing the framework for a fundamentally designed wellness program. It is recognized that wellness programs at the school worksite is a new field. There are no "single blueprints for success", therefore, no two programs will be exactly alike. (Health Insurance Association of America and the American Council of Insurance, 1985). It is understood that as this study progresses, new approaches and ideas will be discovered. Through the review of literature, guidelines will be established

and considered as fundamental to any worksite wellness program.

Definition of Terms

1. Health - "a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity," World Health Organization (Mayshark and Foster, 1972).
2. HEW - U. S. Department of Health, Education, and Welfare.
3. Lifestyle - actual patterns and habits of a person's existence. Most of these habits and patterns can be controlled (Bickory, 1980).
4. Meta-Evaluation - secondary analysis of one or more empirical summative evaluations (Kolbe, 1985).
5. Physical Fitness -

"The ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure-time activities and meeting emergency demands. ...It involves the performance of the heart and lungs and muscles of the body. And, since what we do with our bodies also affects what we can do with our minds, fitness influences to some degree qualities such as mental alertness and emotional stability... It is a major basis for good health and well-being." (GEICO, no date).
6. Role Model - applies to a person or thing thought especially worthy of copying or imitating due to that person's conduct or actions (Barnhard, 1965).
7. Stress - "the body's physical, mental, and chemical reactions to circumstances that frighten, excite,

confuse, endanger or irritate" (McNerney, 1974). "The emotional wear and tear of life" (John Hancock Mutual Life Insurance Company, no date). The body's response (wear and tear) can be due to either pleasant or unpleasant demands placed upon it (Richards, 1982).

8. Well-Being - health and happiness intertwined between two components: physiological and psychological (Rawls and Richards, 1983).

9. Wellness - Synonymous with the term health, health promotion, and lifestyle intervention... "A state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity" (Hamm, 1985). This term is discussed in more detail on page 16.

Summary and Overview of the Study

This chapter has introduced the wellness concept and a general overview of the direction this study has taken. The wellness concept can be incorporated in a methodical program constructed to provide answers to management's concern over escalating health care cost, lost productivity, absenteeism, sickly employees (to include key personnel), job-related stress, and burnout. Public school personnel are not immune to these detrimental entities. The subsequent chapters attempt to incorporate a comprehensive approach to designing, implementing, and

testing the effects of a school worksite wellness program on public school employees.

Chapter II presents a comprehensive review of the literature and focuses on: defining wellness; explaining why employers need to incorporate the wellness concept; effectiveness of wellness programs; types and examples of existing programs; a strategy for designing health promotion programs in the public school setting; and relevant school worksite wellness studies.

Chapter III explains in detail the methods used in this study to assess the effects of a structured wellness program at a particular school worksite setting. This chapter will include a description of the sample, the survey instruments that were used, and the procedures that were followed. In addition, the statistical techniques related to the research questions will be presented.

Chapter IV will be a report of the dependent variable results. The findings will include reported pre and posttest assessment of job satisfaction, general well being, stress, and physiological measurements (to include resting heart rate, resting blood pressure, and skin fold measurements).

Chapter V will involve a discussion of the findings, conclusions, and recommendations for further study. Methodical cautions as they relate to the conclusions will be an important element in this section due to the sample

selection, quasi-experimental design, and previously discussed difficulty in the evaluation of, "intangible", attitudes (Health Insurance Association of America and the American Council of Insurance, 1985) as an artificial measure of positive outcomes.

CHAPTER II
REVIEW OF LITERATURE AND RESEARCH

"Not only the length of life, but the quality of life deserves attention." - Anderson (1981)

Introduction

The review of literature presented in this chapter will provide insight into the wellness concept. It will provide a review of previous health promotion research and generate an understanding of the growth, present state, and future trends that are being experienced in the "wellness" movement. This review of related literature will be organized into seven major categories: (a) Wellness Defined; (b) Why Wellness? (c) Effectiveness of Wellness Programs; (d) What Are Worksite Wellness Programs? (e) Types and Examples of Worksite Wellness Programs; (f) Planning Strategies in Implementing a Faculty and Staff Wellness Program in a Typical Public School; and (g) Experimental Research Undertaken at the School Worksite.

Wellness Defined

Webster defines wellness as "the quality or state of being in good health" (Gore, 1966). Makower (1982) characterizes wellness as

"a term that extends beyond mere exercise to include stress management, aerobics, nutrition,

alcohol and smoking abatement, drug rehabilitation, cancer prevention, sexual counseling, and a host of other topics."

The Occupational Health and Safety Journal (Moon and Jones, 1982) include fitness, hypertension control, and weight control in their concept of wellness.

Blue Cross/Blue Shield consultant Robert M. Cunningham believes wellness is the watchword of the whole health awareness movement today. His definition is a more current philosophy for health promotion and actually involves more than the state of well being and absence of disease. He says, "Wellness is the state of robust good health, and that's something that imparts a special impossible-to-measure kind of glow to life -- and even to work" (Bechtel, 1982).

A report prepared for the National Chamber Foundation (Sehnert and Tillotson, 1978) defines wellness as "a process that educates consumers in adopting more healthful lifestyles and becoming wiser buyers of health care services." The term consumer refers to individual purchasers of health care services. This definition implies that healthy lifestyles will increase longevity and improve quality of life.

The National Chamber Foundation (Sehnert and Tillotson, 1978) includes screening programs, accident prevention, medical self-care and wiser buying of health care services in their wellness definition. This organization assumes that health promotion programs will be based on the needs and capabilities of each individual company. They further

state that any company embarking on a effective course of health promotion must take an active role in its employee health care concerns and support a program of health promotion in addressing these concerns.

Wellness ideology is embedded in the central theme of "choice". Individuals exposed to wellness ideas, activities, or programs have the ability to decide - make a choice - about their own personal lifestyles. Choices a person makes about exercise, eating, smoking, drinking, safety habits, emotional outlook, and personal attitudes will determine how they feel, look, work, and live. (Kaldy, 1985).

Dr. Donald Ardell (1984), a pioneer in the wellness movement, elaborated on the lifestyle approach in his book 14 Days to a Wellness Lifestyle. Ardell feels wellness and health are synonymous. "Wellness is a lifestyle approach for realizing your best possibilities for well-being." The concept embraces much more than simply not being ill. It is not being out of breath after running up two flights of stairs in pursuit of your baby daughter. It is leaving workday worries at the job site, not smoking, going without an alcoholic drink for a couple of weeks, or seeing your toes without bending over. It is having the energy to go dancing after work. It is feeling "full of life!"

Health and well-being are influenced by many factors. Exercise, sleep, smoking, and eating are things a person can control. Our health care system, pollution in the atmosphere,

and heredity are things an individual has little or no control over. Wellness simply encourages you to manage those factors you can control.

There are five basic areas of life, Dr. Ardell points out, that an individual must control in order to reach optimal personal potential: physical fitness; stress; nutrition; environment; and self-responsibility. The key to well-being is self-responsibility. Eating right, exercising, or interpreting body signals, are all commitments the individual must choose. It is not an accident but a consequence of making a deliberate choice. Ardell concludes:

"The key is lifestyle or range of actions under your control, such as how you eat, exercise, manage stress, perceive the medical system and, in general treat you body and perceive the world around you. Environment is important, heredity plays a key role, and the health care system has an impact, but only lifestyle is under your influence" (Vastine, 1984).

The Health Insurance Association of America and the American Council of Life Insurance (1985) defined wellness in their recent manual, Wellness at the School Worksite. Their view of wellness is a multifaceted approach that incorporates fulfillment of many needs, ranging from physiological to spiritual. The key element in making individuals feel better is an emphasis on positive and active strategies for better living. The manual emphasizes four major dimensions in an integrated, balanced way for individuals to help themselves feel better:

1. Exercise
2. Nutrition
3. Stress Reduction
4. Health/Safety Awareness.

In addition to these four dimensions, wellness strategies are laced with emphasis on the positive - "on what can be done to make people feel better." This positive rationale is pursued in a holistic approach where all four dimensions compliment each other.

All definitions and health promotion activities of the wellness concept actually fall within the realm of the following three parameters:

1. "Preventing illness, wherever possible is better than curing illness.
2. Training people to stay healthy, generally, is cheaper than treating them after they become sick.
3. Living longer and enjoying it more are goals more attainable through healthy lifestyles than through destructive personal habits."
(Polakoff, 1982).

Specific meanings for the concept of wellness have been interpreted by a number of authoritative sources. Webster's simplistic statement of "being in good Health" (Gore, 1966) has been developed extensively into its present multifaceted concept. It is now viewed as an integrated method for orienting an individual to maximize his potential within the environment where he is functioning. It recognizes the individual's ability to make choices towards a more successful existence (Hettler, 1977).

Why Wellness?

Louis J. Stephens, Jr. (1980), President of Pilot Life Insurance Company, stated in his opening remarks to the Insurance Industry Conference on Health Education and Promotion: "For the past half century, we have looked largely to medical technology for increases in longevity and the ability to live healthier as well as longer lives." Many of the diseases that has plagued humankind through the centuries have been conquered due to the tremendous contribution made by this technology. Health care in the United States has been traditionally defined in terms of "post-symptomatic" treatment: hospitals are needed, constructed, and occupied by sick individuals who are treated by therapeutically trained physicians (Farquhar, 1980). The major gains in this innovative sophisticated medical technology reached its zenith in the 1940's and 1950's -- the so-called "golden era of medical care." The major killers of the era, infectious diseases, had been dramatically decreased during those decades (Carlson, 1980). Caring for the sick and diseased will always be an important health care role for citizens and employers in our nation.

Our country is now perched on the threshold of a new era that goes beyond simply caring for the sick and afflicted (Stephens, 1980). The traditional health care system of

conventional medical treatment is being challenged by the recognition of disease precursors and the elimination of their risks (Lifestyle Plus Center, 1984).

The American Health Foundation in New York states,

"a growing consensus among health experts sees our medical system legacy as one which provides too much care, too late ... a system which is failing because it meets the patient when he is already diseased" (Aerobex, 1983).

Medical schools today and the entire medical system are being criticized for being disease-oriented instead of health-oriented. Dr. Jermyn F. McCahan, associate director of the AMA's department of environmental, public, and occupational health states "Most doctors don't know how to go about applying the concept of prevention" (Plakoff, 1982).

"So many ailments are related to ongoing destructive habits, that you'd think doctors would give lifestyle advice routinely" (Medical World News, 1985).

According to the Association of American Medical Colleges, approximately 100 medical schools in the U. S. require preventive and community medicine, but most of these are survey courses in epidemiology and are taught in the student's first two years. Recent efforts to persuade Congress to give the U. S. Department of Health and Human Services approximately \$1 million to sponsor residencies in preventive medicine have failed. Practicing physicians have developed the ideology that they are

disease fighters instead of health advocates, due to their lack of preventive medicine training (Plakoff, 1982).

A statement by Blue Cross-Blue Shield consultant Robert M. Cunningham, Jr. (1982) offers a more vivid rationale of the lack of prevention emphasis in medical school training programs:

"The real reason for some doctors' lack of interest in well people is embedded in the medical Zeitgeist. From his first day in medical school to his last day in practice, the doctor's attention and energies are focused on pathology. It is sickness, not health, that challenges his knowledge and skill, occupies his mind, and excites his emotions; except when it reappears following a treatment he has recommended and applied, healthy tissue is a bore. Well people are a diversion; sick people are the real world."

Almost a decade ago, the Assistant Secretary of HEW for Health warned that:

"further expansion into the nations health system is likely to produce only marginal increases in the overall health status of the American people ... the greatest benefits are likely to accrue from efforts to improve the health habits of all Americans".

The Assistant Secretary's statement emphasizes the fact that people must adopt less damaging lifestyles (Stephens, 1980) and that employers must develop programs to improve the health of their employees (Fielding, 1980).

Health care costs to employers are now growing at a rate of 25 to 100 percent a year and account for 25 percent of the total payroll (American Council of Life Insurance, 1985).

Wellness Programs are needed today because we are witnessing a shift from the treatment of infectious diseases as previously described to the treatment of chronic illnesses, such as cardiovascular disease (Farquhar, 1980). Employers are footing a great share of the enormous cost related to the "unwell" worker. With cardiovascular disease at the top of mortality charts,

"Corporate America has grown very cognizant of the toll preventable disease exact in terms of increased absenteeism, decreased productivity, higher health and disability insurance costs, and premature death" (Fielding, 1980).

In a study of the health care field as it relates to the business community commissioned by the National Chamber Foundation, an affiliate of the Chamber of Commerce of the United States, in a report titled A National Health Care Strategy: How Business Can Promote Good Health for Employees and Their Families, the following comment was made:

"The business community, as the payer of nearly half of the nation's rapidly inflating health care bill, unquestionably has a great stake in controlling costs within the health care industry. One very important - and very basic - way of working toward this objective is to improve the health status of the individuals whose use of health care services makes up the bill" (Polakoff, 1982).

The cost figures on "un-wellness" is staggering. The total recorded United States health care costs in 1960 was \$26.9 billion, 5.3 percent of the Gross National Product (Parkinson, 1980). This figure escalated to \$60.0 billion in 1969 and \$212.2 billion in 1979, an increase of 350% in

ten years (Brennan, 1981). In 1981, it stood at nearly \$275 billion (Bechtel, 1982). The total health care cost grew to an astonishing \$355 billion in 1983 (Aerobex, 1983) and \$387.4 billion in 1984 (Kronholm, 1985). This is equal to \$1,580 for every man, woman, and child in the country (Kronholm, 1986). The cost of our nation's health care has been rising faster than the Consumer Price Index (Whitford, 1983). Spending for health care rose 9.1 percent in 1984, "compared to a 3.2 percent rise in the price for all items in the index". Health care's share of the Gross National Product now stands at 10.6 percent (Kronholm, 1985) and it continues to outdistance the entire U. S. budget for defense (Fowler, 1983).

Twenty-seven percent (Krohnolm, 1985) of the nations medical bill is paid through the 345 million claims for 30 million elderly or disabled people. Medicare has been experiencing unanticipated increases in claims. Expectations for 1986 are even dimmer. The Reagan administration plans to expand medicare coverage to "protect beneficiaries against the cost of catastrophic illness" (Pear, 1986).

Medical benefits for retired employees is one of the world's greatest "time bombs" according to Joseph F. Califano, Jr., a former secretary of health education, and welfare. Twenty years ago, businesses had a vision to pay for retirees medical cost. It has now grown into a financial monster. The U. S. Labor Department has estimated that the

nation's businesses are obligated to a \$125 billion health-benefit obligation for future retirees. Califano strongly rejects this figure and places it at \$1.4 trillion - thus being a "time-bomb" for future business expenditures (New York Times, 1985).

A 1980 report from the President's Council on Physical Fitness indicated that American industry pays more the \$25 billion every year directly because of premature death as well as 132 million work days of lost production. Almost 50% of workers' deaths are due to cardiovascular diseases (heart attacks, strokes, or other heart ailments) (McManus, 1983). Heart disease alone robs employers of 52 million work days a year. Many of the almost one million (Associated Press, 1986) Americans who died of heart attacks were middle-aged men and women at the peak of their working years (President's Council on Physical Fitness and Sports, 1980). Other business sources agree and cite further that employers must spend \$700 million a year to replace 200,000 men, aged 45 to 65, who die of, or are disabled by coronary heart disease (Richardson, 1985).

The American Heart Association (1984) has compiled the following statistics in regards to cardiovascular disease:

- "43.5 million Americans have one or more forms of heart or blood vessel disease
- 985,000 Cardiovascular disease deaths:
 - 554,900 by Heart Attack
 - 159,600 by Stroke
 - 270,540 by Other heart disease
- 38 million American have high blood pressure

170,000 Coronary Artery Bypass Surgeries are performed each year
 \$552 million has gone into American Heart Association research between 1949 and 1984" (American Heart Association, 1984).

"\$78.6 billion is the Estimated 1985 cost for treatment of heart and circulatory disease:
 \$325 for each man, woman, and child in the United States
 \$48.2 billion for hospital and nursing home services
 \$13.6 billion for lost work time due to disability
 \$11.8 billion for doctor bills
 \$5 billion for medicine"
 (Associated Press, 1986).

Our hearts pump 42 million times a year (Wasserman, 1986). Even with this enormous demand, McManus (1983) states that many cardiovascular difficulties are preventable. Swiatoca (1982) emphasizes, "individuals control 52% of the risk factors commonly associated with cardiovascular disease." Monitoring blood pressure, ending cigarette smoking, eating wisely, regular exercise, and medical checkups are factors an individual can manage (American Heart Association, 1984). "Lifestyle" is the key, according to Dr. William Castelli (1986), Director of the Framingham Heart Study in Massachusetts.

Rod Useldinger, Director of the Fitness Motivation Institute in San Jose, California, made the following statement at a Social Welfare conference in Norfolk:

"Americans will rush out at the threat of swine flu to stand in line for hours to get a shot against something they probably will never contract, yet they will do nothing to prevent themselves from getting heart disease: (Mather, 1985).

Stress related absenteeism cost American industry over \$15 billion (Richardson, 1985) and is a component linked to many heart problems. The acceptance of this fact is emphasized in New York City, by policeman who incur heart conditions either on or off the job. The afflicted policeman is deemed to have a "job-related disability" due to stress and is compensated accordingly (Powers, 1983). This compensation is incorporated in the more than \$65 billion businesses shell out for yearly life and health insurance premiums (McManus, 1983). In 70% to 90% of all illnesses, stress causes or worsens the eventual health price tag. "Its key victim is the heart!" (Aerobex, 1983).

According to the Surgeon General of the United States, Dr. C. Everett Koop (1986), smoke does more to damage the heart than it does to the lungs, and smoking cigarettes exacts a high cost to the nations health care bill. Smoking costs the United States an average of \$65 billion due to its adverse effect on health (Pango, 1985). Cigarette smoke kills over 300,000 people annually. This is six times the number who died in all the years of fighting in Vietnam. Millions of individuals become disabled due to smoking cigarettes (Tate, 1986).

A report from the Office of Technology Assessment, a scientific arm of Congress, states that 50 million Americans smoke about 30 billion packs, or 600 million cigarettes, each year. The report emphasized that \$12 billion to \$35

billion was spent in 1985 to treat smoking related diseases such as lung cancer, and \$27 billion to \$61 billion for lost job productivity. The total costs range from \$39 billion to \$96 billion a year (Pango, 1985).

Medical and scientific studies, to include a recent report by the U. S. Surgeon General, have concluded that secondary smoke is harmful to a persons health, thus, fueling the debate presently waging concerning non-smoking areas at business locations (Tate, 1986). It is hard to assess the effects of secondary smoke in the calculations of smoke-related deaths, but total deaths in 1982 were broken down as follows: 139,000 from smoking-related cancers; 123,000 from cardiovascular disease associated with smoking; and 52,000 from smoking-related chronic lung disease (Pango, 1985).

The Office of Technology Assessment also brought out an important reference to lifestyle choice and well-being in their statement; "smokers sometimes tend to be heavy drinker's" (Pango, 85). This may shed some light on the range of costs being between \$39 billion and \$96 billion dollars due to the fact that any "excess of disease in smokers may not be because of the use of tobacco, but due to the consumption of alcohol" (Pango, 85).

Alcohol abuse alone costs industry an estimated \$15.1 billion annually according to a Penn State University Study

(Aerobex 1985). Drug abuse costs industry \$8.3 billion and mental illness \$25.8 billion (Richardson, 1985).

There were 440,620 deaths due to cancer in 1983 (Associated Press, 1986). Cancer will strike 3,819 people in the Hampton Roads area of Virginia during 1986 (Virginia Beach General Hospital, 1986). Hampton Roads is a typical large metropolitan area. Many studies suggest that exercise, nutrition, and other lifestyle changes can have a positive effect on prevention and treatment of cancer (Maney, 1986).

A \$1 billion outlay is spent each year to treat the common backache with an associated cost of more than \$230 million in workman's compensation to business and industry (DeCarlo, 1982). Seventy-five million Americans suffer from back ailments leaving 2.5 million totally disabled. The 200,000 back surgeries each year is the leading cause of absenteeism from work - 93 million workdays annually. Following pregnancy, back problems are the second leading cause of hospitalization and are responsible for 18 million doctor visits a year (Palmer, 1985). Eighty percent of Americans will at one time or another have a disabling back problem during their lifetime due to poor flexibility in the lower back, weak abdominal muscles, or poor lifting techniques. Each of these causes can be controlled through a lifestyle choice. An individual can strengthen muscles associated with back support or educate themselves in the techniques of safe lifting (Welton, 1985).

A new publication directed at worksite wellness programs began providing information specifically directed to business and industry in October of 1982. This magazine, titled Corporate Fitness and Recreation, emphasized that:

"Seventy-five percent of the estimated 75 million who suffer low back problems can either prevent or correct the condition through proper exercise" (Swiatoca, 1982).

A Penn State University study notes that General Motors, for the past several years, "has paid more for its employees' health insurance premiums than it has paid for purchasing steel to go into automobiles!" (Aerobex, 1983). General Motor's plight was further embellished by a 1985 press article by Edward Miller: "On a typical day, General Motors Corporation workers produce 15,000 cars and 50 babies." Along with medical costs of having babies, GM spends \$2.3 billion annually for its employee health claims. GM processes 100,000 health claims a day and GM Chairman, Roger B. Smith states that their biggest supplier is not U. S. Steel, but Blue Cross-Blue Shield.

Blue Cross and Blue Shield of Virginia states that health care costs are growing at an astronomical rate. They believe companies will not be able to afford health insurance for a family of four in the 1990's. The cost at that time could be \$7,500 a year (Blue Cross/Blue Shield, 1983).

Equitable Life Insurance Company has broken down the

stress bill of a typical chronic headache sufferer to be about \$3,400 a year:

"visits to employee health center	\$473.14
lost time	56.31
work interference due to symptoms	2,206.95
work interference affecting superiors	72.80
work interference affecting co-workers	542.88
work interference affecting subordinates	42.12"

(Powers, 1983).

Medicare reported in a *Virginian-Pilot* (1984) article that its hospital insurance trust fund would run out of money by 1990 if the present rise in health care costs continued. The Bureau of Labor Statistics reported the increase in health care costs at 6.4 percent for 1983, a lower rate than the year before, but still high. Physician services costs were increased by 7.5 percent with dental services topping 8.2 percent. Karen Davis, a professor at the John Hopkins University School of Hygiene and Public Health in Baltimore, states that these increases fuel the continued seriousness of high health care costs to individuals and to employers.

Executive yearly absenteeism and hospitalization costs are estimated at between \$10 billion to \$20 billion (Aerobex, 1983). According to Rosch, the bill for premature executive deaths in 1982 escalated to \$25 billion. It costs \$250,000 to \$1 million to replace a top executive (Powers, 1983). Xerox Corporation places the tab at \$1 million (Welton, 1985).

Regular employees are replaced at a cost of up to \$50,000 (Hudson, 1982).

These examples only touch the surface of the problems facing unhealthy/unfit employees. Some cost factors have no price tag, i.e.: inexperienced replacement of employees, missed deadlines, misunderstanding, canceled meetings, and lost confidence. People who are in a poor state of health are ill more often and recover more slowly. "Chronic fatigue and lethargy increase the risk of accidents, while efficiency and production lag" (Aerobex, 1983).

The costs for employers can be summed up very briefly from information gathered by the Control Data Company of Staywell (1983) which has used an extensive survey of the currently available health promotion programs to give marketing and management accurate information. From 1982 health claims data and a 1982 corporate wide employee health survey, Staywell found that:

"People with poor health habits have:
Higher health care costs;
Longer hospital stays;
Lower productivity;
More absenteeism; and
More chronic health problems than those
who do not."

Staywell also found that smokers have 25% higher health care costs and 114% longer hospital stays than non-smokers.

People who do not exercise have 36% higher health care costs and 54% longer hospital stays than people who do. People who are overweight have 7% higher health care costs and 85%

longer hospital stays than people who are not. These research conclusions show why over 10 percent of our Gross National Product is spent on medical care - and the "lion's share" of this tab is paid through business employee insurance plans (Gechtel, 1982). These cost realities are the reasons why wellness and employee health has become a major concern to individuals and their worksite employers.

The rationale for a wellness program at the workplace is justified on the basis of the enormous cost to employers. Illness or disability rob employers of 500 million workdays a year - 26 million due to heart disease and 93 million due to lower back problems. "As has been true all this decade, health care's focus in 1986 will be on its cost" (Bowan, 1986). The staggering economic factors that unwell workers place on health care insurance combined with the changing nature from infectious disease to chronic disease will challenge employers to seek alternative strategies to effectively deal with the damaging results. The next section will investigate the benefits that are derived from worksite wellness programs.

Effectiveness of Wellness Programs

One of the most profitable benefits an organization can offer its employees is a wellness program (Prevatt, 1985). The message implied is that an individual can do more to decrease the risk of heart disease, major medical illness, accidents, and disabilities than a doctor can

(Haney, 1984). The information that follows is a presentation of the benefits found in selected wellness programs found in businesses and schools. These results are only a brief glimpse of the gains that may be expected in a holistic lifestyle intervention program.

With the understanding that exercise is a fundamental factor of any structured approach to a healthy lifestyle change, a brief listing of the potential benefits are:

- "1) More energy and capacity for work and leisure activities
- 2) Greater resistance to stress, anxiety, fatigue and a better outlook on life
- 3) Increased stamina and strength
- 4) Improved efficiency of the heart and lungs
- 5) Loss of extra pounds and help in staying at ideal weight
- 6) Reduced risk of heart attack"

(National Heart, Lung and Blood Institute, 1981).

In 1968, an early study of the results of fitness development was pioneered by the National Aeronautics and Space Administration (NASA). At their Washington D.C. headquarters, 259 men aged 35 to 55 were provided a three-times-a-week exercise program. This year long program was administered by the Heart Disease and Stroke Control Program of the Public Health Service. At the conclusion of the program, participants completed a questionnaire and were given an extensive medical examination. The findings were as follows:

- "Half reported better job performance and better attitudes towards work.
- Eighty-nine percent reported improved stamina.
- Forty percent reported sounder sleep.
- More than 60 percent lost weight.

Many quit smoking, or cut down.
Half paid more attention to their diet.
There was a highly consistent and positive relationship between perceived benefits and the results of medical tests" (American Association of Fitness Directors in Business and Industry, 1983).

A Harvard study published in the 1985 December issue of the British Journal of Cancer (Haney, 1986) concluded that "long term athletic training establishes a lifestyle that somehow lowers the risk of breast cancer and cancers of the reproductive system." Breast cancer alone strikes one in seven women (Portsmouth General Hospital, 1984). The study's sample was 5,398 women who graduated from 10 U. S. colleges between 1925 and 1981. The researchers found that 2 1/2 times as much cancer was found on the less active women. Possible reasons for this difference was that exercise produced leaner body composition in athletic women and these leaner women produced less estrogen - and a less "potent form of estrogen" - than the non-athletic women. Estrogen plays key a role in female cancer development (Haney, 1986).

A recent Norwegian study indicates that exercise is effective in countering the effects of depression. A group of 43 hospitalized major depression patients were divided in half. One group served as a control, while the other half had an exercise component in their daily routines for a period of nine weeks. An improvement on both mental and physical tests were indicated in the exercise group. Oxygen

intake was the most significant factor. "The higher the oxygen intake, the greater the antidepressant effect of exercise" (British Medical Journal, 1985).

Changing peoples lifestyles has played a role in a variety of studies undertaken to assess wellness approaches in reducing the risks of heart disease. Researchers who analyzed 130 different studies and reports concluded that the most significant factor contributing to heart disease was increases in blood cholesterol levels (Haney, 1986). A reduction in the level of cholesterol can be controlled to a great extent by a person's dietary choices (Bates, 1984). Between 1968 and 1976, the researchers calculated that 190,000 lives were saved due to lower cholesterol levels and 150,000 lives were saved due to reduced smoking. Dr. Lee Goldman directed this study and explained that an estimated 335,000 lives could have been saved if further reductions were made in smoking and cholesterol levels. He stated that lifestyle interventions are "powerful" and each person has at his disposal the means to make appropriate lifestyle choices for a healthier life (Haney, 1984).

The Belgian Heart Disease Prevention Project was a recently completed study of 19,400 factory workers. Two groups of men ranging in age between 40 and 59 were divided into two groups. A personal counseling intervention was administered to men in Group A. Included was smoking reduction, exercise, cholesterol intake, and weight and

blood pressure control. Group B received no counseling.

"After five years, Group A showed a death rate 17.5% lower than B's, and a heart attack rate 24.5% lower" (McManus, 1983).

The Tenneco Corporation has been involved in employee health and fitness program research for a number of years. They report that their results strongly indicate that health care claims can be reduced by exercise programs:

"The average claim for non-exercising females at Tenneco was \$1,535.83, more than double the \$639.07 average for those who exercise. For men, the average claim for non-exercisers was \$1,00.87, compared with \$561.68 for those who exercise" (Gatty, 1985).

Dr. A. M. Ismail, Perdue University, conducted a study of men, age 35-55. The general health condition of the men were similar. All these men began a regular aerobic exercise program over a four year period. Approximately one third of the participants dropped out. A comparison of non-accident medical claims was made on those who dropped out compared to those who did not (Chen and Jones, 1982). Ismail found the numbers of claims to be approximately the same for both groups, but the average cost per claim was doubled - \$3,965 compared to \$7,698 - in those men who dropped out (EAP Digest, 1983).

The Chairman of Mesa Petroleum Company in Amarillo, Texas, T. Boone Pickens, Jr., stated that,

"workers who exercise regularly average 27 hours of sick leave and \$173 in health costs per year vs. 44 hours and \$434 for the inactive" (Huntly, 1984).

Exercise made the difference in cost savings in a controlled study designed by Roy Shepard of the University of Toronto. He compared two Canadian insurance companies - one with a wellness program and one without. Cost savings for the company involved with wellness programs were:

"\$744 more per person on each of its 1,300 employees
 \$233 in direct health costs
 \$146 in productivity
 \$30 in absenteeism
 \$230 in turnover
 \$36 in smoking and alcoholism, and
 \$32 in cardiovascular deaths" (Daniel, 1983).

Another Canadian study involved the Metropolitan Life Insurance Company. Two groups of employees were studied at its main office. An average of 4.8 sick days were reported for a group of 100 employees involved in a fitness program, while a average of 6.2 sick days were reported for members of a control group (EAP Digest, 1983).

State employees in Albany, N. Y. participated in a cardiovascular risk reduction program emphasizing physical conditioning. The group of 847 reduced their sick leave by 4.7 hours per employee, per year, as compared to the prior year. Their total sick leave hours during the program period were fewer than all other New York State employees (Chen and Jones, 1982).

The Ontario Health Insurance Plan (OHIP) conducted a study that tracked doctor and hospital visits, workdays taken off for ill health, and claims made to physicians. Three of the conclusions were:

"1. People with higher levels of physical fitness tend to have lower medical claims.

2. As estimated reduction of 31 million in OHIP medical claims could be expected if all adults aged 20-69 attained at least average physical fitness.

3. People with higher levels of fitness tend to have reduced incidence of coronary heart disease." (Health Insurance Association of America and the American Council of Life Insurance, 1985).

New York Telephone recently made nine health promotion programs available to its 80,000 employees and estimated it saved \$2.7 million in health care costs (Prevat, 1985). Daniel (1983) reports that this company also saved \$1 million in overtime and 44 lives in a disease detection program.

Campbell Soup reports it saves \$10,000 for each \$500 it invests in stop-smoking behavior modification programs (Daniel, 1983).

The Soviet Union has perhaps carried out the most extensive research on the economic benefits of exercise.

The general summary of their research efforts were:

"Working people who exercise regularly produce more, visit a physician less frequently, are less prone to industrial accidents, and are absent three to five days a year less than those who do not" (EAP Digest, 1985).

A statistical report prepared by the Metropolitan Life Foundation indicated that between 1976 and 1980, the death rate among U. S. males in the Armed Forces was about 40% below that of males in the general population. Medical screening and emphasis on physical fitness were the main reasons attributing to the lower death rate (The Flyer,

1983). The U. S. Army is presently involved in one of the "largest efforts ever undertaken to promote health." Uncle Sam is launching a worksite wellness program called the Army Staff Corporate Fitness Program (Squires, 1985).

Public schools have also been involved in wellness programs and studies. The rising health care costs and ramifications to the budget of replacing sick employees with substitute teachers has encouraged school boards and administrators to seek solutions. Fairfax County, Virginia spent over 3.3 million dollars for substitute teachers in 1982 (Sherre, 1983); New York City topped \$16 million for the same expense in the 1978-1979 school term. Other districts also felt the pinch: Jefferson County Kentucky, \$1.6 million in the 1978-1979 school term - Chicago, \$5 million; Clark County, Nevada, \$1.4 million; and Detroit City, \$7.5 million during the 1983-84 school term.

A wellness program in Topeka (Kansas) Public Schools has been identified as helping bring the district a \$423,508 refund from Blue Cross/Blue Shield for filing fewer health insurance claims, according to the director of communications, Barbara Kudlaoek (Kaldy, 1985).

Teacher absenteeism in Madison, Wisconsin was reduced by 17% after the introduction of a comprehensive wellness program. This is an annual savings of \$45,000 (Chen and Jones, 1982).

In Algona, Iowa, the school system "was able to obtain a 5% reduction on single party premiums, as long as the money saved was spent on wellness" (Kaldy, 1985).

The examples described in this section are indicative of probable outcomes that can be found in instituting a structured approach to wellness activities. Relevant experimental studies pertaining to wellness at the school worksite will be explained beginning on page 100. An in-depth outline of components of worksite wellness programs are presented in the next section.

What Are Worksite Wellness Programs?

In context of the worksite, wellness programs involve health promotion in any combination of "educational, organizational, and environmental activities designed to support behavior conducive to health of employees and their families" (Parkinsons, 1982). These programs are designed to reduce the risks associated with major sickness, disease, and premature death among employees.

The introduction of health and fitness programs to the business world has been sparked by the general fitness renaissance in America. Adding fuel to this ideology is the human and financial cost of sickly employees. Corporations, and now small businesses, have declared war -- fighting back with stretching, jogging, bending, jumping, twisting, and educating (Horowitz, 1981). Joe Asher (1974) summed this

new corporate fitness craze into a very simple concept. He states that many employees usually lead sedentary lives without a great deal of exercise. If they were to exercise, they would be more "alert", feel better, and thus be able to "function" better. The concept implies that through exercise and a general health awareness, an individual feels good about himself, his self-esteem heightens, causing an attitude change in relationships with other people.

Over the past few years, the fitness concept has grown as business leaders have seen the light of a profoundly simple idea: "A dollar spent today on employee wellness will go a whole lot further than it will after years of bad habits and neglect cause a physical breakdown that requires major medical attention" (Bechtel, 1982). Corporations are responding to the need for "in-house" fitness programs. These programs provide employees with exercise gyms and jogging trails, and courses sponsored in how to fight high blood pressure, smoking, obesity, and the devastating effects of stress (Pyle, 1979). John Sculley, president of the Pepsi Cola Company states, "Fitness is the department with the best return on investment" (Bechtel, 1982). Moon ad Jones (1982) believe that a company's total health care containment effort should include employee fitness programs. The benefits derived from such action will include improved job performance and work attitude, improved stamina, sounder

sleep, reduced vulnerability to accidents, fewer doctor visits, and lower morbidity.

The cost parameters discussed earlier make a strong stand for management's investment in employee health awareness. Dr. Bruce E. Buckbee, Director of the Boston Fitness Group, a fitness consulting agency in Quincy, Massachusetts, states, "American businesses are just starting to recognize that you can't drain your employees for profit and not put anything back into the system" (Makower, 1982).

Workplace fitness programs should not be accepted as a magic formula for health and longevity, but these programs do improve the physical well-being of the employee and the business alike (President's Council on Physical Fitness, 1980). "The time for employers to act in promoting health for their employees is now," insists a report commissioned by the Health Insurance Association of America (Beck, 1982). Charles A. Berry, MD, a medical director for NASA, agrees and has stated that there is an association between risk factors and major preventable disease. To change these risks, action must be taken now. He further states that the rationale for instituting health promotion programs at the worksite is very simple, "Employees represent your greatest corporate asset ... Their state of health affects the value of their contribution to corporate activity." Those that disagree with the urgency of employee health promotion have

been countered by Berry with a simple response ... "You are already involved, due to the financial burden imposed on your business. Like it or not, you are paying, so how can you lower the expense?" (Beck, 1982).

An employee wellness program can be both cost-effective and provide a positive potential for health promotion. Organizations can look to the YMCA, local hospital or university, health department, health club, parks and recreation department, or group insurance carriers for help in developing and establishing their own health promotion program. Among the more comprehensive approaches are designs developed by Allen (1980), Timmens (1981), Brennan (1981), Moon and Jones (1982), Parkinson (1982), Villeneuve, Weeks, and Schwied (1983), and Chapman (1985). (Development of a school wellness program will be discussed on page 82.

A model developed by Robert F. Allen in 1980 divides the health promotion program into four phases:

- Phase I - includes gathering data to tailor the program to the organization's specific needs. Task forces, representing a cross-section of employees, should be formed to attack particular areas of concern.
- Phase II - is the program introduction. Allen recommends that opportunities can be provided for employees to understand the impact of wellness on health practices by using workshops. These workshops would be beneficial in helping employees assess where they are and where they want to be.
- Phase III- should include informal self-help programs, generalized support groups, specialized support groups and various task force activities. Individuals participating in

the program should be given up-to-date information on related health-risk concerns and strategies to help improve personal health practices.

Phase IV - should provide an extension of the program to family members. Another important component found in this phase is an evaluation of the total program.

In the summer of 1981, William Timmens listed ten action steps for the successful development of a corporate physical fitness program in his article published in Public Personnel Management:

1. Stimulate top management's interests in and, later, a firm commitment to employee physical fitness.
2. Survey employee feelings concerning proposed facilities and programs.
3. Collect relevant information and data from government and industrial sources.
4. Proceed with the definition of program policy and objectives.
5. Provide the essential facilities and equipment while retaining the option of later expansion if warranted. (Leasing or sharing of public or private facilities must not be overlooked as alternatives to construction.)
6. Adequately staff the program with qualified experts. (Some may choose to carry out this step prior to or concurrent with the preceding step to assure the compatibility of facilities and programs.)
7. Provide an appealing variety of programs and employee motivational aides as necessary.
8. Maintain a cycle of diagnostic/remediation evaluation with appropriate stress testing facilities, staff, and programs.
9. Integrate the physical fitness and coronary heart disease prevention programs into daily organizational activity through promotional and educational strategies.
10. Periodically evaluate and revise programs as necessary" (Timmens, 1981).

A concept that is rapidly gaining the emphasis on wellness program development is that of management's responsibility to the commitment of a quality program and

that a professional staff is present to carry out the activities. This concept uses the principle of caveat emptor and was investigated by Brennan (1981) as a basis for outlining management's expectations:

"Caveats for Worksite Health Promotion
COMMITMENT is vital.

- involve executive and middle management
- encourage role model executives
- solicit active involvement and support from union leadership
- do not view health promotion as a panacea for poor morale or bad management

CONTENT of programs must be carefully decided.

- conduct a needs assessment
- determine demographics of target population
- treat each company or plant site as a distinct entity
- have program priorities reflect the needs of the target group

CAPITALIZE on existing programs, personnel and services.

- involve medical, employee benefits and food service departments
- utilize internal and external public relations networks
- seek input from indigenous company leaders at all levels

CONSISTENCY and CLARITY in policy and activities yield a "total" approach.

- do not send mixed messages
- determine carefully the eligibility for program participation
- provide reimbursement for preventive medical services
- serve healthy foods in the cafeteria and vending machines
- offer exercise opportunities for all, not just for athletes or fitness addicts
- say what you mean and mean what you say

CREDIBILITY and CONFIDENTIALITY are crucial and inextricably linked.

- respect the privacy of the individual participant
- be open to constructive criticism
- adhere to the principle of voluntary participation
- acknowledge limitations

CONSPICUOUS but CONSERVATIVE approaches work

- publicize programs
- acknowledge participant's success
- highlight the uniqueness of the program
- do not oversell cost-containment potential of health education
- strive for congruent employer/employee expectations

COMMUNICATE genuine CONCERN for employee well-being.

- provide sufficient funds and staff as proof
- involve employee dependents in programs whenever possible
- be non-judgemental but caring

CALCULATE cost-effectiveness of efforts.

- build in evaluation from the beginning
- set achievable goals that can be measured
- keep a record of developments
- measure participation levels
- determine unit and total costs
- measure success against establishing standards

COMBINATIONS of learning experiences yield the best results.

- avoid one-shot deals that lack follow-up
- explore a variety of ways to motivate individuals
- provide ongoing reinforcement for positive behavioral changes

COMPLIANCE is fostered by mutual respect and trust.

- deal with employees' self-perceived priorities
- avoid victim blaming
- encourage responsibility for one's own health
- address employee interests and cultural patterns" (Brennan, 1981).

An interesting paradigm for wellness program development was designed by Moon and Jones (1982) in an accountability model. In Figure 1, three differing perspectives should be assessed when establishing the criteria for a worksite wellness program. All programs should center their focus on the employer's expectations, the employees derived benefits,

and the design values incorporated by the individual in charge of the total program.

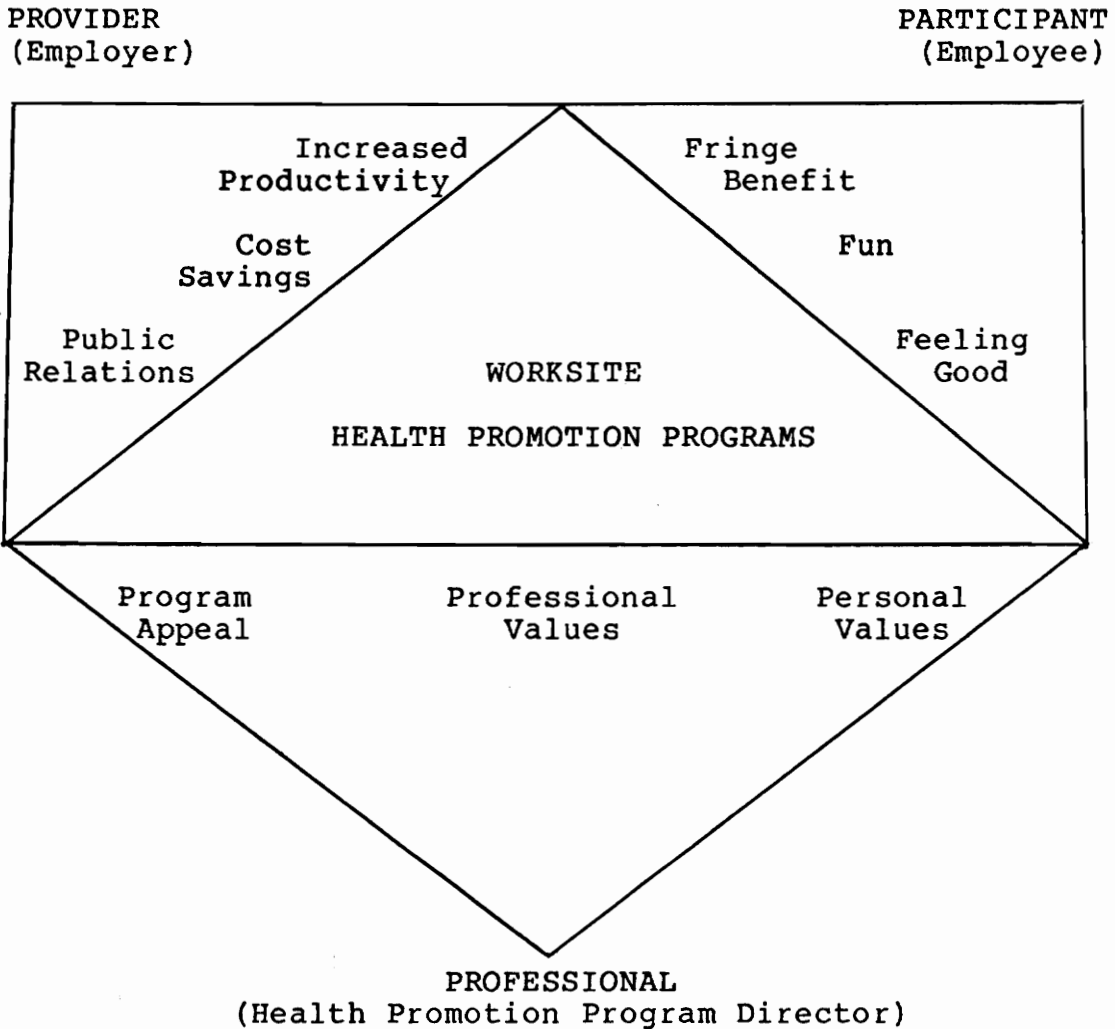


FIGURE 1

DIFFERING PERSPECTIVES OF A WORKSITE WELLNESS PROGRAM
- Moon and Jones (1982)

Increased productivity in reduced costs, savings (dollars, material usage, benefit outlays), and public relations in the form of positive and caring attitudes about

the importance of employees, is the goal of the provider. Participants in a wellness program are receiving a fringe benefit that can be fun, and results in a "feeling good" attitude that can lead to a more productive and successful work environment. The individual designated as the director depicts the success or failure based on his professional values and how he makes the program appealing (AAFDBI, 1983).

Parkinson (1982) bases the success of a worksite health promotion program on four specifics:

1. Assessment of risk. Through a health risk appraisal or other measure, individual risk of morbidity or premature mortality is assessed for cardiovascular disease, cancer, stroke, mental health problems, and accidents.
2. Risk reduction. Ideally, all the following would make up a health promotion program, but one or more might be selected, depending on the organization's needs and constraints:
 - High blood pressure control
 - Smoking control
 - Drug/alcohol abuse control
 - Weight control and nutrition education
 - Exercise/physical fitness
 - Early cancer detection
 - Accident prevention/self-protective measures against environmental and other health hazards at the workplace
 - Stress management
3. Evaluation. This is essential to determine whether the program has led to:
 - Reduction in risk of cardiovascular disease, cancer, stroke, mental health problems, and accidents
 - Decrease in absenteeism
 - Increase in morale and in productivity
 - Decrease in medical costs, insurance premiums, and disability benefits
 - Reduction in morbidity and premature mortality
4. Environmental and social support. The environment-physical, social, political, and economic-that supports life-style change is an important element in a program. The program

should therefore include some or all of the following:

- Employee participation in teaching and program management
- Employee support groups
- Cafeteria programs for more nutritious foods
- Vending machines with nutritious snacks
- Outdoor recreation facilities
- Economic considerations
- Lending library of health books and journals" (Parkinson, 1982).

These specifics provide a combination of "educational, organizational, and environmental" activities that are designed to support behaviors necessary for successful health outcomes for employees and their families.

Villeneuve, Weeks, and Schwied (1983) base their health promotion model on a comprehensive approach that includes identifying the purposes of the program, establishing the goals, identifying the target group, and establishing a health management facility. Strong leadership is critical both to insure successful implementation and in order to reach the employees at their level of need and values. Leaders should encourage employees. Management participation justifies the importance and commitment to the program.

Villeneuve lists a number of obstacles to overcome if health promotion programs are going to be successful at the worksite. Among the problems discussed in Villeneuve's work was motivation. He recommends that the intrinsic approach should be encouraged ... employees must want to participate. One method is to have the employees keep a personal fitness chart or log of activities to encourage self-motivation.

Villeneuve also emphasizes that employees place a high value on their limited personal time and that distance can be an obstacle in developing a wellness program. There is a greater participation rate if the activities are close to the worksite. Cost is another obstacle that can be remedied by the organization taking responsibility for the expense based on the fact that the organization can recoup this expense through increased productivity levels, decreased absenteeism and tardy rates, and drop in insurance rates. Another obstacle is the selection of activities to be used in the program. The activities must appeal to a large number of employees (Villeneuve, 1983).

Larry Chapman (1985) is President of Corporate Health Designs and is a consultant for health promotion programs for the U.S. Air Force. His model for worksite wellness involves five traditional components: 1) Physical Fitness Habits that include aerobic exercise and organized activities; 2) Coping Skills - stress management activities, time management, and motivation dynamics; 3) Nutrition Habits including weight control, nutrition education, and food access; 4) Reduced Use of Harmful Substances - cigarette, alcohol, drug, and caffeine abuse; and 5) Individual Safety Practices - workplace safety, defensive driving, protective measures, and back injury prevention. In addition to these five traditional components, Chapman indicates that two non-traditional elements, Self Care Practices and Appropriate

Use of the Health Care System, should be incorporated in a total workplace wellness package. Chapman's model is diagrammed in Figure 2.

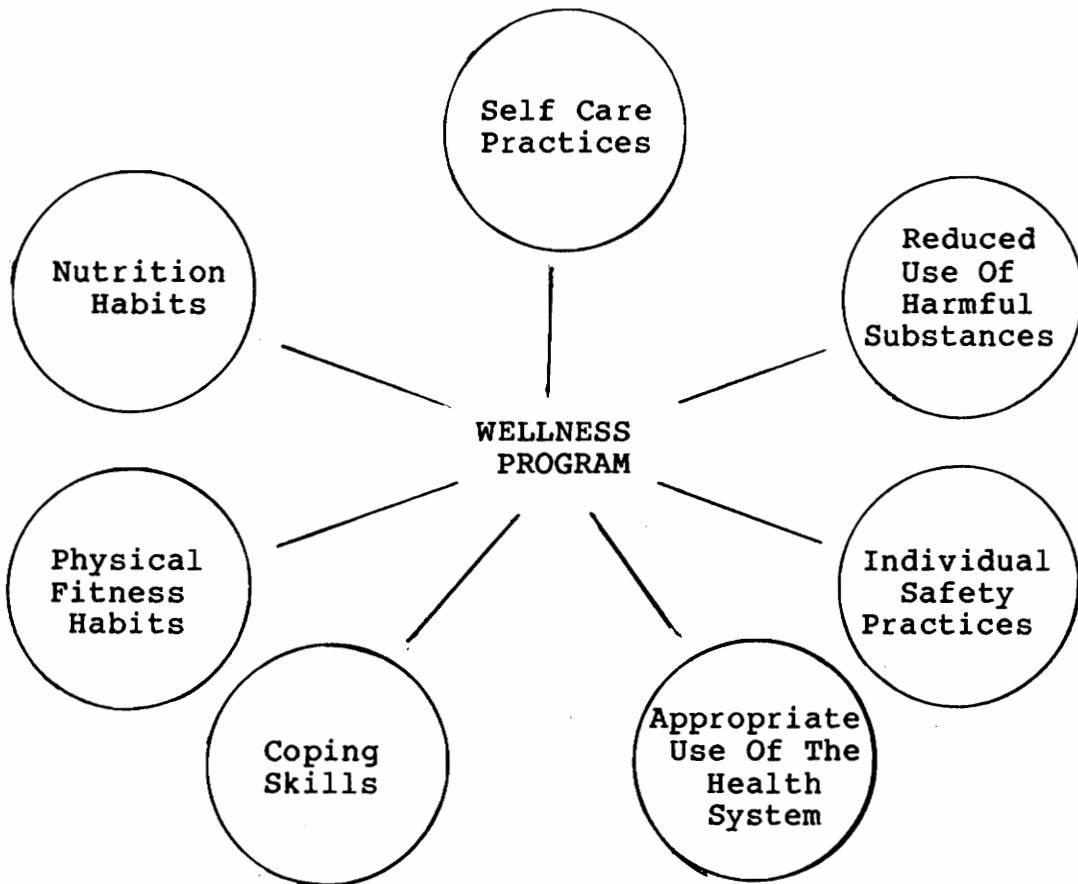


FIGURE 2

HEALTH PROMOTION IN THE WORKPLACE
Chapman (1985)

Chapman's rationale for Self Care Practices and the Appropriate Use of the Health System in his scheme for holistic health promotion is that both these entities have a direct immediate impact on health care costs. He believes

this impact will free up more money in the long run, that can be applied to enhance worksite wellness programs.

This section has identified fundamental models and key elements of the worksite wellness approach to employee health promotion. Allen, Timmens, Brennan, Moon and Jones, Parkinson, Villeneuve, Weeks, Schwied, and Chapman have been identified as pacesetters for structuring theoretical components of worksite wellness programs. The rudiments they have identified will be incorporated in the examples of worksite wellness programs described in the next section.

Types and Examples of Worksite Wellness Programs

This section will identify and explain existing worksite health promotion programs in business, industry, hospitals, and educational institutions.

Wellness Programs in Business and Industry

At the head table for health promotion at the worksite is business and industry (Cunningham, 1982). The Association of Fitness Directors in Business and Industry (AAFDBI) boasted a total of 25 members in 1975. By 1982 there were over 3,000 members (Bechtel, 1982). The AAFDBI is affiliated with the President's Council on Physical Fitness and Sports with its major purpose:

"To provide a professional organization to support and assist in the development of quality physical fitness programs in business and industry" (Calacino, 1983).

In 1977, a private Labor-Management Health Care Task Force, under the leadership of former Secretary of Labor, John T. Dunlop, developed a series of recommendations for management in developing programs to reduce health care costs. Included in their recommendations was, to make health education programs available to all employees. All levels of government and industry management have supported the task force's recommendation (McGill, 1979).

The President's Council on Physical Fitness and Sports and the Department of Health, Education, and Welfare (DHEW) has the governmental leadership role. They have worked closely with special interest groups and distributed various literature on health promotion. Both agencies had a role in the development of the first National Conference on Health Promotion Programs in Occupational Settings held in 1979. It has grown and is now an annual event. The conference provides an opportunity for representatives of industry, unions, insurance companies, and scientific/academic communities to discuss issues surrounding development, implementation, and evaluation of health promotion programs at the worksite.

Support from other governmental offices include the Office of the Surgeon General and the Department of Occupational Health. The Surgeon General's office has released various reports on health promotion and disease prevention which provide guidance on developing strategies for improving

worksite health (McGill, 1979). The director of the Department of Occupational Health has stated that a worker has a right to his health; therefore, worksite health promotion is a legal entity.

Business and industry support has come from two major organizations, The American Association of Fitness Directors in Business and Industry (AAFDBI) and the American Medical Association (AMA). AAFDBI President, Howard Bender states, "I think any business should have fitness programs for it's employees" (Elliott, 1983). Bender is also president of the financial consulting firm, the Howard J. Bender Company, which incorporates a program of aerobic exercise for all its employees. Banks, factories, corporate conglomerates, and small businesses have developed wellness programs in employee health (Cunningham, 1982). This growth in the wellness movement has developed because business and industry believe there has to be a better way to spend \$300 to \$400 billion -- the cost of health care in the United States today.

Presently, corporations with wellness programs are everywhere. Well over 500 large corporations have developed programs, which gives some indication to the phenomenal growth rate. Early studies have begun to show evidence of positive change: "fewer sick days taken, reduction in medical claims, and higher productivity" (Bechtel, 1982).

A typical corporation fitness lab is generally located and the program planned so that an employee can take an hour

away from the work station, exercise, shower, change, and return to work. Most equipment is carefully placed in a circuit type arrangement and include: treadmills, rowing machines, stationary bicycles, and weight-training machines. The larger corporations are blessed with paid fitness instructors who tailor the circuit to the employee's needs (Kaplan, 1983). This arrangement is typical of large corporations, but wellness programs are as varied in size, equipment, program offerings, testing and screening abilities, number of participants, and company expectations as there are companies. The range includes low-cost information and dissemination activities, to comprehensive programs with treatment and follow-up procedures (McGill, ed., 1979).

The most comprehensive programs for health promotion activities can be found at Tenneco, General Dynamics, Xerox, Wesley Medical Center, and Kimberly Clark.

As elaborate venture of a business enterprise into the wellness arena is the \$11 million center that Tenneco, Inc. built next to its Houston headquarters (Benham, 1982). The 25,000 square foot facility houses 32 pieces of Nautilus weight training equipment, twelve bicycle ergometers, stretching areas, four racquetball/handball courts, a four lane 1/5 mile indoor track, and one multipurpose room for activity classes. The facility is staffed by eight full-time fitness professionals, five part-time nurse practitioners, a part-time cardiologist, a part-time dietitian, and a

part-time counselor (Baun, 1983). At one time, 1900 employees were on a waiting list to get in (Benham, 1982). In 1983, 3,318 of Tenneco's 3,700 employees participated in wellness activities (Baun, 1983) that involved programs in stress-management, nutrition counseling, and cardio-pulmonary resuscitation (Benham, 1982). The focus of Tenneco's program is the "increasing awareness of and commitment to positive health habits and improving the overall quality of life" (Baun, 1983). This focus is concentrated as a planned program of activities for each individual developed by the health and safety director, Dr. Edward Bernadick (Benham, 1982). There are thirty-six different exercise classes each week with an average weekly attendance of 525. Individual exercise accounts for 85% of the work load with jogging being the most popular activity. A computer-based information system is used to store individual exercise data (Baun, 1983). There is a 2.2 million-dollar dining complex adjoining the athletic center that serves fruit plates, salads, and boiled fish. The employees schedules are adjusted to allow for workout time (Benham, 1982).

One of the most comprehensive fitness programs in the country is the Health Fitness Center established for all employees and their families of General Dynamics in San Diego, California. Wellness programs, services, and activities at this center include:

"(1) Physical Fitness - Fitness profiles include individual and small group testing of

height, weight, blood pressure, vital capacity, percent body fat, resting heart rate, muscular strength/endurance, flexibility and low back screening. (Stress tests are available through the Medical Department or contract service group.) Individual exercise prescriptions are provided and three different types of aerobic fitness classes (co-ed) are offered: Shape-up, Exer-Fun, and Rock-A-Robics.

(2) Weight Training - Strength exercises for body tone and for specific sports training are included.

(3) Nutrition - A nutritionist (Registered Dietitian) is responsible for individual counseling, group workshops and basic "good eating" information provided through handout material.

(4) Stress Management - Included are yoga and meditation classes, biofeedback workshops, "Positive Parenting" classes and massage therapy workshops.

(5) Rehabilitation Program - "Healthy Back" classes, alcohol and smoking cessation courses, and sessions on the care and prevention of injuries are offered.

(6) Education - Risk factor workshops are provided as well as weight control workshops, 'Contemporary Issues in Sport' seminars, leisure planning workshops and health enhancement seminars covering a wide variety of health issues concerning care of the entire body and mind (i.e., dental, skin, eyesight, etc.)" (Michaelson, 1980).

Xerox Corporation began a program for employee fitness in 1967 at its Rochester, New York corporate headquarters facility. Today Rochester boasts of four fitness facilities. Xerox developed six others in the United States, and three in Europe (Cunningham, 1982). Their programs are designed to encourage all 56,000 employees to exercise on their own (Young, 1981). The theme for wellness programs at Xerox is

"I'm Taking Charge Of My Life" (Cunningham, 1982) and includes books, newsletters, brochures, health seminars, cassettes, awards incentives, and a system of team leaders in 140 branches around the country (Young, 1981). Xerox's largest facility is the new \$3.5 million fitness and recreation center located at the International Center for Training and Management Development in Leesburg, Virginia (AAFDBI, 1983). This complex has a fitness center, racquetball courts, jogging trails, and pool. In the cafeteria, employees have a menu alternative to the traditional foods regularly served. As a wellness component, the "Physfoods" program is based on the "Dietary Guidelines for Americans." The choices include foods that are low-fat, low-salt, low-calorie, without sauces or gravies and fresh fruits, vegetables, and salads (Bechtel, 1982).

The Wesley Medical Center began its quest in wellness activities in 1980 when the WELL Club (Wesley Employee Long Life Club) was started. Single membership costs \$52 yearly and family membership costs \$78. One-third of the employees had joined by 1983. The club has a variety of activities including an in-door swimming pool, a universal gym, aerobic exercise areas, nutrition classes, stress-management classes, and exercise classes. "Adventure Wellness" is part of the program. It includes trips to a rural environment for participation in river canoeing, skiing (Cross-country and downhill), cycling, and backpacking.

A fitness assessment is done at a discount for members. The assessment includes cardiovascular endurance, flexibility, percent body fat, muscular strength, spirometer testing, fit-back evaluation, blood chemistry (total cholesterol, fasting blood sugar), stress and anxiety levels, nutrition and other health habits.

Thirty minute monthly "Well Breaks" are given during employee lunch and dinner breaks. These mini-educational series are on exercise, diet or other health-related issues.

To encourage motivation, each member is assigned to a personal fitness adviser. The adviser is an exercise physiologist, cardiac nurse, or recreational therapist. The adviser helps the employee set goals and monitors his progress.

The program uses an Energy Point System. Each activity has a specific point value assigned. Each month a computer calculates the points for each employee. The employee may use these points for prizes such as a Well Club t-shirt, duffel bag or shirt.

A new 35,000 square foot building is planned. The building will include a lap swimming pool, human performance laboratory, indoor running track, racquetball/handball course, aerobic exercise circuit, activity areas, classrooms and locker rooms. One of the priorities is a nursery for members to use while they are exercising (Howell, 1983).

Kimberly Clark's Health Management Program is centered in a \$2.5 million facility next to the corporate office

buildings in Neenah, Wisconsin. The facility is used for health testing and physical fitness. It contains an Olympic-size swimming pool, a 100-meter indoor track, exercise equipment, sauna, whirlpool, showers, lockers, and laundry. It is open six days a week. It is staffed by 25 full-time and part-time employees including two physicians, seven registered nurses, technicians, counselors, exercise specialist, secretaries, and lifeguards.

Before starting the program the employee must complete a screening process under the direction of a physician. The screening involves a 40 page medical history, laboratory tests, physical examination and treadmill test. An individualized health prescription, based on the screening, is designed for each participant (Young, 1981).

Business and Industry have led the way in designing and implementing worksite wellness programs. The AAFDBI and the President's Council on Physical Fitness have assisted labor and management's quest for health promotion strategies. At the forefront of successful program implementation are Tenneco, General Dynamics, Xerox, Wesley Medical Center, and Kimberly Clark.

Wellness Programs In Hospitals

Most people associate hospitals with treatment rather than prevention, but these institutions flourish in health promotion programs. The rationale for this growth can be found in the following:

1. Wellness programs are "great" for public relations.
2. There is a strain on health-care costs for hospital employees (Vastine, 1984). These cost results in a squeeze on budgets (Allen, 1981).
3. Money can be made by the sale of packaged wellness programs to local organizations.
4. Personal interest of the directors and administrators at hospitals.
5. Public health promotion (Vastine, 1984) which recognizes that "helping people stay healthy is as important to the future of our society as helping sick people get well" (Allen, 1981).

Spiraling costs of health care benefits and the drain on productivity due to unwell employees affect hospital budgets much the same as in business and industry. Being in this similar situation, "any rise in the wellness level of its employees means a potential easing of the budget squeeze" (Allen, 1981). With this fact in mind and support from the Center of Health Promotion of the American Hospital Association (Vastine, 1984) many hospitals have begun comprehensive wellness programs.

Allen (1981) discussed two examples of successful hospital wellness programs; the Swedish Medical Center of Denver, Colorado and the Samaritan Health Service of Phoenix, Arizona.

The Swedish Medical Center serves suburban Denver. Its' Wellness Center was established in 1977 to promote a "self-responsible approach to better physical, mental, and spiritual health." The wide spectrum of activities include wellness assessment, time management, wellness lifestyling, biofeedback and relaxation seminars, a nutrition forum, a running clinic, and body shaping. There is also an emphasis on self-responsibility in regards to physical fitness, stress management, environmental sensitivity, and nutrition.

The Samaritan Health Center was created in 1978 after a task force study found there was a great potential for broadening the scope of traditional health care services. As part of their wellness program, activities are emphasized through the acronym FREEDOM. Seven intervention areas are represented by FREEDOM: Fitness, Risk Reduction, Educated Eating Skills, Emotional Well-being Skills, Drug Decision, Occupational Enrichment, and Management of Stress. The following skills are taught in each of the FREEDOM areas:

FITNESS SKILLS - Appraising your fitness
 Improving your strength
 Improving your flexibility
 Improving your endurance
 Planning and implementing your program

RISK REDUCTION SKILLS -
 Identifying the problem
 Gathering data
 Selecting alternatives
 Planning and implementing
 Evaluation

EDUCATED EATING SKILLS -
 Recognizing calorie content
 Selecting foods

Evaluating and modifying eating patterns

EMOTIONAL WELL-BEING SKILLS -

Communicating understanding
Communicating your perspective
Putting it all together

DRUG DECISIONS (SMOKING) SKILLS -

Understand your smoking behavior
Making a commitment
Managing your smoking behavior
Making you plan

OCCUPATIONAL ENRICHMENT SKILLS -

Developing values
Assessing your present job
Exploring job alternatives

MANAGEMENT OF STRESS SKILLS -

Relaxing physically
Relaxing emotionally (Allen, 1981).

Many hospitals across the country have recognized the economic and human needs associated with health promotion programs. A pioneer in this development has been Mercy Hospital in Cedar Rapids, Iowa. Their wellness program began in 1980 and includes fitness assessments complete with exercise prescription; education and materials concerning fitness, nutrition, stress, smoking and CPR training; and a variety of exercise classes that range from aerobic dance to weight training. The program coordinators attribute six important elements in assuring success:

- a. determine the target population and tailor the program to fit it.
- b. start small, offering several key programs that can be easily controlled, then later expanded.
- c. support is needed from both the hospital administration and community relations, along with a director or liaison person who handles communications between administration and wellness staff.

- d. make the program accessible to the employees.
- e. offer fitness-oriented programs initially, adding other aspects of wellness later.
- f. keep the program enjoyable and fun: special events, promotions, variety. (Anderson and Munn, 1982).

Chesapeake General Hospital in Chesapeake, Virginia organized a health promotion program in 1981 under the encouragement of the hospital director. Originally, the approach was directed to improve the lifestyle habits of the hospital employees. At this time the wellness program has been expanded to a staff of three and a separate facility called the Lifestyle Plus Center. The present program has three focuses: hospital employees, community activities, and services for business and industry. The comprehensive activities available include: the Health Risk Appraisal, fitness assessment and prescriptive exercise program, stress management, weight control, smoking cessation, back injury prevention, Aerobex - cardiovascular exercise program, CPR, health screening, and a community oriented "Wellness Day" to promote healthy lifestyles. Future endeavors include nutrition assessments (Walton, 1985).

Hospitals have developed wellness programs for much the same rationale as that of business and industry. High health care costs and lost productivity have provided the impetus for this movement. Hospitals also have a public relations interest vested in health promotion and many have opened separate facilities to encourage management of healthy

lifestyle changes. Examples of hospitals that have developed such programs are: the Swedish Medical Center of Denver, Colorado; the Samaritan Health Service of Phoenix, Arizona; Mercy Hospital in Cedar Rapids, Iowa; and the Lifestyle Plus Center of Chesapeake General Hospital, Chesapeake, Virginia.

Wellness Programs In Schools

The public sector, to include educational institutions, has joined with private and corporate establishments in the quest for battling the rapidly rising cost of health care services for their employees and to increase worker productivity (Kaldy, 1985). It is very important that educational institutions be included in the worksite wellness arena, for the product they produced is just as important as any product developed for economic gains (Radar, 1985). "There is a positive correlation between the quality of personnel employed, and the service delivery program of an organization (Chesapeake Public Schools, 1985). The educated individual deserves the best teachers available. Each school wants to employ the healthiest and most productive entity. Once this person is a part of the organization, that organization must accept some responsibility for enhancing a healthy concept for that employee.

Recent studies have shown that teaching is perhaps the most stressful profession today. In the past we once thought that policemen, firemen, and air traffic controllers faced higher levels of stress, and had more stress related

problems. Research indicates that perhaps teachers face greater stress because the kinds of stress that police and firefighters face are high intensity but short duration forms of stress, where teaching is a different form of stress. Teaching is more a low level stress that continues unabated year after year. Now research is finding this chronic exposure to stress has a more devastating effect on the body than other forms of stress which are high intensity and short duration (Bates, 1984).

The future holds boundless opportunities for the development of the wellness concept in school settings, not only for teachers, but for all staff members. This section will identify the interrelationship of school health programs for students and wellness programs for staff and faculty members. Various school programs will be explained briefly.

Lloyd J. Kolbe (1985), the associate director for the University of Texas Center for Health Promotion, Research and Development, states that programs for health promotion in most public schools have not been structured to simultaneously improve the health of school faculty, administrators, and staff (Figure 3).

The interrelationships among school health promotion and educational outcomes are depicted by Kolbe in Figure 3. The components of the school health promotion program should provide an equal effect on both student and faculty

health-related behaviors. Positive influences on health-related behavior will provide short-term effects on health status and student cognitive performance and long-term effects on health status and educational achievement. Most school health promotion programs unfortunately are implemented without integrating the components depicted in Figure 3. Staff, faculty, and administrators are left out of the school health promotion picture.

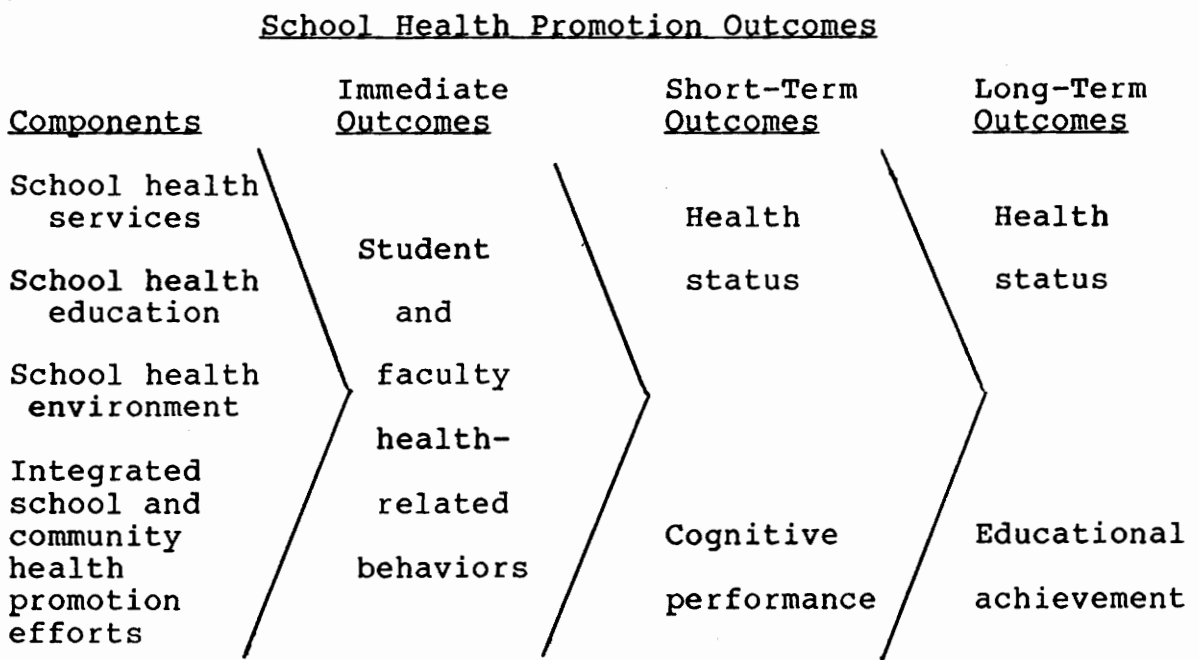


FIGURE 3
SCHOOL HEALTH PROMOTION TO IMPROVE
HEALTH AND EDUCATIONAL OUTCOMES
- Kolbe (1985)

Kolbe (1985) has synthesized the findings of many studies to determine the effectiveness of school-based health education interventions on improvement in health

knowledge, attitudes, skills, and health behaviors of students. Among the many meta-evaluations Kolbe assessed were: Schaps' review of 127 drug abuse prevention program evaluations in 1980; Kinder's study of drug and alcohol education programs in 1980; Levy's 1980 nutrition-education evaluation and cardiovascular disease mortality review in 1981; Catford's 1984 study on smoking; Immarion's state of school disease education ; and work by Olsen, Green, and Connel, 1980, on multiple behaviors that influence health.

Kolbe's argument is based on positive results from his study of these 15 meta-evaluations on students over the past five years. Why are teachers, staff members, and administrators left out of the health promotion picture at the worksite when positive results can be documented on student behaviors? From his chart (Figure 3) and research implications, Kolbe stresses the intertwining of a shared outcome:

"Health promotion programs for school faculty and staff might improve student health and educational outcomes not only by increasing faculty productivity, but also by increasing faculty interest in providing a healthy environment for students in teaching students about health, and in serving as healthy role models for students" (Kolbe, 1985).

Kolbe's ideology is shared by two Oregon researchers (Stevens and Davis, 1985) who undertook a study of health promotion at schools in their state. They feel that the major focus on health in schools has been the "development and implementation of curricula and instructional programs." The remaining two components of the total health program,

health services and healthy environment have been "unfortunately" forgotten. Both seem to be assumed an administrative operation with no direct responsibility to any one individual. Stevens and Davis rationalize that a healthy school environment denotes the social setting of the school and is equally important in influencing a child's physical, mental, and social health. Their study focuses on encouragement of healthy individual behavior of staff members as role models. To encourage modification to this end, at schools across the state, school personnel teams in Oregon were invited to summer conferences where they became involved in wellness activities. These meetings were named the Seaside Health Promotion Conferences. A model of the Seaside Conference's impact was developed by Drolet (1982) in an unpublished doctoral dissertation from the University of Oregon. This model is diagrammed in Figure 4.

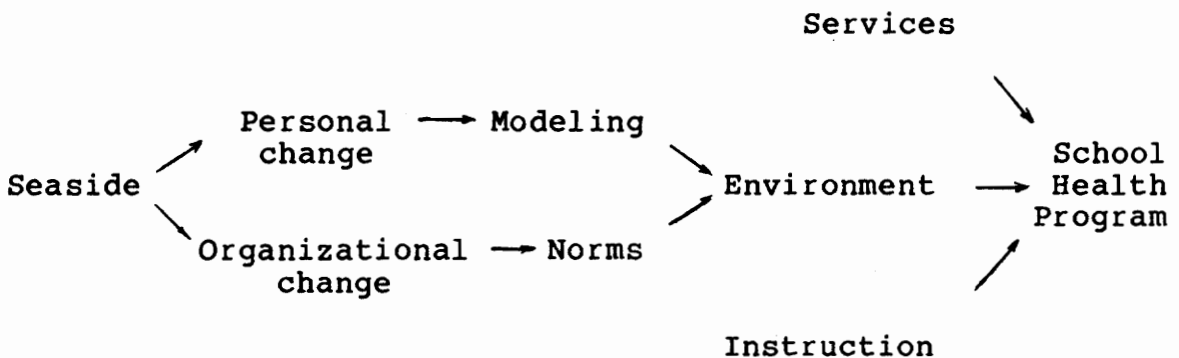


FIGURE 4

SEASIDE'S IMPACT ON THE SCHOOL'S PSYCHOSOCIAL DEVELOPMENT
- Drolet (1982)

Schools throughout the nation are becoming more involved in development of wellness programs for their employees. The New York State Education Department in Albany developed a pilot Physical Fitness/Heart Disease Intervention Program in 1981. This program consisted of exercise and educational seminars, and resulted in a difference of missed hours for sick leave. Participants in this program missed 46.5 hours following completion of the program compared to 73.5 hours for all New York State employees in the same year (Young, 1981).

The Littleton, Colorado, Public School system has taken a \$7,500 yearly budget and operated an extensive health promotion seminar and an employee assistance counseling referral system. They publish various health, nutrition, and fitness pamphlets and a monthly article for the school system's staff development catalogue. Similar activities can be found in the school systems of: Topeka, Kansas; St. Louis Park, Minnesota; Montgomery County, Maryland; and Algona, Iowa.

Virginia is paving the way for many wellness opportunities at the school worksite. The Governor's Council on Physical Fitness and Sports in Virginia has developed an award program for school personnel throughout the state. Former Virginia Governor Robb's Executive Order Number Ten, May 1982, states, "The council shall have the general responsibility of improving physical fitness opportunities for all citizens

of Virginia, and shall serve to demonstrate the Commonwealth's support for health and fitness." The program is administered by the State Department of Education and awards are provided by Blue Cross/Blue Shield of Virginia. The program allows participants to win an award if they participate continuously in a sixteen week fitness program (Taylor and Bentley, 1983).

Thomas Harrison Junior High and Harrison High School in Harrisonburg, Virginia have been active in the Governor's Physical Fitness Program. Organizers in the two schools feel this program "will" encourage school employees to set better fitness examples for students. The student council association has purchased a stationary exercise bike that is housed in one of the rooms at the school. Requirements for the program's exercise component is made more readily available to teachers and staff through use of the exercise bike.

The health promotion program at the Harrisonburg schools was initiated by two films on fitness and wellness. Coinciding with the program's implementation was the opening of Rockingham Memorial Hospital's planned Wellness Center. People were enticed to find out about the wellness concept through the publicity of both programs (Brock, no date).

Deep Creek High School in Chesapeake, Virginia organized a wellness program for faculty and staff members in 1983. In cooperation with the Lifestyle Plus Center of Chesapeake General Hospital the entire staff was assessed on a group

health risk appraisal. Highlights of the results of the appraisal include the following problems identified in the group report. Of the teachers who took the appraisals:

- 88% had a cholesterol level of 210 mg or more
- 71% did not participate in regular exercise
- 70% had moderately high to high stress levels
- 53% considered themselves overweight
- 53% wore their seatbelts 0-25% of the time
- 26% smoked

The group profile also identified the faculty and staff members' major health education and health program interests as:

- 82% Exercise
- 58% Stress Management
- 50% Weight Control
- 47% General Health Education
- 34% Nutrition Counseling
- 26% Blood Pressure Management

The school developed an in-house wellness committee and organized an aerobic exercise program, a walking program, nutritional meal program, health information handouts, wellness notes on schedules and memos, bulletin boards, and other activities. The wellness group developed a slogan and imprinted a logo on t-shirts and other media outlets (Hardee, 1985).

In Martinsville, Virginia, the entire school system staff, faculty, and administration were involved in three days of wellness activities during their pre-school conference days, August 21-23, 1984. The program was endorsed and supported by the school divisions's superintendent and school board. Dr. James E. Calkins made a commitment to the

program and under the direction of coordinator Joe Finley, the conference was a success.

Activities were scheduled daily from 8:30 a.m. to 4:00 p.m. and included: health resource centers; fitness activities; recreational activities; individual school faculty meetings to discuss and develop individual school plans for wellness; general sessions; fitness testing; stress management; nutrition; safety; and many others. Participants kept a point card on attendance and participation and certificates were given to each participant signed by Dr. Calkins and Joe Finley (Finley, 1984).

Martinsville School System employed a part-time wellness coordinator as of late fall 1985. Future plans are to expand their commitment to the wellness concept (Turner, 1986). A similar experience was planned for the entire division faculty, staff, and administration of Alleghany Highlands, Virginia. Dr. Mark Pace, Superintendent, has given his total support for the pre-school wellness conference held August 27, 28, and 29, 1985. Paul Lindenhoker coordinated the activities: physical fitness; mental health workshops; nutrition workshops; personal health and safety workshops; leisure time activities; fitness testing; and others (Lindenhoker, 1985).

Norfolk, Virginia has been actively developing a wellness program in their school district. Their district has a wellness committee that developed a video-tape and

inaugurated individual programs for each of the systems 50 schools. Thirty-one of the schools have been slated for documentation as to the effectiveness of the program. Resource guides have been developed, nutrition, stress, smoking, and fitness programs are attended by various school personnel. It has been mentioned that this wellness approach is a possible factor in the Status Quo for insurance rates for school employees during 1983 (Swecker, 1984).

In Waynesboro, Virginia, the high school has been involved in the wellness explosion by having a "Wellness Night" that took place on October 9, 1984. During the evening, citizens, students, and school personnel could participate in health screenings (blood pressure, pulse rate, weight, body fat, and others) and attend various presentations on diet, stress, fitness, sexual assault, substance abuse, and others. Created by the Health and Physical Education Department of Waynesboro High School and the Department of Instruction for the school division, the program was designed to acquaint those in attendance with the "vast array of wellness activities and services available" in their city ("Wellness Night", 1984).

Waynesboro High School developed their program from ideas generated by a similar program held at Plaza Junior High School in Virginia Beach, Virginia. The objective was the same as Waynesboro's - to "acquaint the students and community with the vast array of wellness activities and

services in Virginia Beach." Stephanie DuRoss (Wellness, 1983) organized over 150 organizations who presented activities, talks, screenings, displays, and information booths. Ms. DuRoss (1985) also coordinated a "Fitness Profile" for health and physical education teachers at the 1985 Virginia Association of Health, Physical Education, Recreation, and Dance (VAHPERD) Conference in Charlottesville, Virginia.

Virginia Beach school's have recently ushered in the wellness concept with \$10,000 allocated from the School Board. Pilot programs and an all-day Wellness Workshop are highlights of growing interest by this school division. The office of personnel services organized a variety of one day workshops that were attended by approximately 200 employees of the schools in October of 1985. Administrators, teachers, secretaries, nurses, cafeteria, and custodial personnel all shared in a common vision of healthy lifestyle choices (Peccia, 1985). Following the workshop, Dr. Don Peccia, personnel department, implemented a series of twenty programs on fitness that were offered to the employees of the school system. Program sites were housed at the following five elementary schools: Trantwood, Thoroughgood, Court House, Kempsville, and Brookwood (Scott, 1986).

A majority of the interest in school worksite wellness in Virginia has been generated by the Health and Physical Education Division of the State Department of Education.

Since 1982, this division has designed and offered an annual health education and wellness conference in the summer for school teachers, staff members, administrators, and community health members (Davis, 1985). The Department of Education in Oregon has initiated a similar state wide activity for school employees titled the Seaside Health Promotion Conference. Their focus is on the promotion of influencing student healthy lifestyle behaviors by encouraging a healthy school environment and healthy staff. Role-model behavior is the goal (Stevens and Davis, 1985). Each school district in Oregon has an action plan for wellness (Health Insurance Association of America and the American Council of Life Insurance, 1985).

The fourth Blue Ridge School Health Education Conference was held during July of 1985 with over 300 participants attending Mary Baldwin College in Staunton, Virginia for one week. The State Department of Education along with other contributors underwrites the entire cost. The objective of the conference is to "improve and strengthen comprehensive health education in Virginia." Participants are given the opportunity to share successful health education techniques, to become familiar with health education resources, and to attend workshops in the areas of nutrition, fitness, mental health, substance use/abuse, personal safety, disease prevention, and others. The wellness approach is a major goal.

A team of four individuals are invited from each of the state's school divisions through their respected superintendents. Each team has a leader who directs the formulation of strategies for a team plan to implement wellness concepts in their respected school divisions (Davis, 1985). A follow-up team leaders' meeting is held in November of each year to update this action plan and to share with others their problems and strategies (Bentley, 1984). Blue Ridge V is planned for the summer of 1986 (Moser, 1985).

The research reviewed in this section provides a skeletal over-view of various approaches taken by school systems and individual schools to implement wellness programs. The most elaborate and publicized, the Dallas Independent School District Wellness Program, will be discussed in the section on Experimental Studies Undertaken at the School Worksite, page 100.

School health promotion activities have a potential for enormous benefits both to the employer and the employee. In the case of public education, the product (students) would also reap benefits because of the potential lasting effects of positive role model teacher behaviors (Stevens and Davis, 1985). A healthy environment for student growth and learning and a school system actively involved in personnel-oriented health promotion can achieve the prognosis

of longer and healthier lives for millions of Americans (Kaldy, 1985).

Virginia's involvement in school worksite health promotion has been fueled by the interest and support generated by the State Department of Education at their annual Blue Ridge Wellness Conference. Specific strategies for planning a health promotion program in a typical public school setting will be outlined in the next section.

Planning Strategies in Implementing a Faculty
and Staff Wellness Program in a Typical
Public School Setting

Public schools are not immune to the health problems facing business and industry. "School administrators, like their peers in the corporate world are susceptible to the hazards of executive stress and burnout" (Koff, 1981). Teachers suffer chronic ills due to stress of accountability, declining enrollments, less mobility, and higher costs of living (Frey, 1983). A worksite wellness program can offer an alternative strategy for addressing educational concerns in the typical school setting. The research in this section will address the specifics of developing a health promotion program for faculty and staff members.

An important concept is that school employees must buy into the school systems' or schools' health promotion strategies. The fine line that measures success or failure

of wellness programs is the staff's attitude toward it. It is imperative that the school staff has input into molding the program. A change in personal habits is a difficult endeavor and if the staff feels they have had a voice in a wellness program's direction, then their attitude is one of acceptance and not one of rejection. The leadership, school administration, and the entire staff should develop the program's goals.

It is also imperative to assess the needs of the school's staff and faculty before attempting to implement a worksite wellness program. A data bank of information needs to be gathered on their age, sex, type of insurance claims, cost of health benefits, annual days of absenteeism, number of disability claims, number of accidents, and the turnover rate. If cost reduction is a primary need, then this data is useful in suggesting the kinds of programs that can yield appropriate results.

A tool useful in determining need is a needs assessment. This assessment strikes a balance between the identifiable and the self-perceived needs of a school faculty and staff. The assessment should address management priorities for support and commitment (Brennan, 1981). Another tool similar to the needs assessment is the health interest survey or employee preference questionnaire. This survey should be dispersed to faculty and staff members to get an indication of what type of program the employees want (Farquar, 1981).

Employee needs and interests must be addressed by the school administration. Giving faculty and staff members a voice in planning, choosing, and evaluating the wellness program will develop a sense of "ownership" and promote a "positive" atmosphere. Involving employees will likely insure a higher participation rate.

In determining needs, an evaluation of the school's capabilities and resources must be addressed. Will the school make a commitment to have facilities available for use and will funds be budgeted for program needs? (Berry, 1982).

Individual schools should be responsible for providing the specific educational methodology needed to meet program requirements. Someone in-house must develop and be responsible for the total program. What qualifications or training should this leader possess? When will this program be made available? Release time in a public school setting is critical because teachers and staff members have responsibility for the supervision of students. Evaluation is also a part of the school's responsibility. Should it be a monitored evaluation, a cost-benefit evaluation, or a program effect evaluation? (Ware and Parkinson, 1982).

Plans for a health promotion program for faculty and staff members at a typical public school setting must be goal-oriented. This allows for a properly designed procedure that will assure success for the various participant groups (Pyle, 1979).

The major goal is to "encourage positive health habits in employees through the development of an affective assistance program aimed at primary prevention" (Gore, Reed and Miller, 1979). It is imperative that wellness programs are not promoted as just a tool to avoid disease and premature death, but as a program to help employees "maximize their potential in all aspects of their life." It is for this reason that the wellness program be multi-dimensional. Concentrating on just the fitness aspect or nutritional aspect without involving comprehensive program components and their interrelatedness is not fair to the participants and will eventually doom the endeavor (Bellingham, 1982).

A second goal should be "to enable the individual to become responsible for his or her own health habits" (Gore, 1979). This is accomplished by increasing the "level of health knowledge" and the "decision-making ability of individuals" to improve their personal health status (Brennan, 1981).

Making it "fun" should be a third goal. The total program, although comprehensive, should offer variety, companionship, stimulation, and pleasure. This does not imply a slackening of physical demands, vigorous activity, or health awareness knowledge. It does mean that careful attention should be addressed to the overall environment during program activities. The atmosphere should be non-competitive, relaxing, a release of tension, and

enjoyable -- "fun" (President's Council on Physical Fitness and Sports, 1980).

In meeting goals established for the program, certain criteria should be developed that would serve as a guide for attaining the goals. An exercise component should be the cornerstone of any program. The President's Council on Physical Fitness and Sports gives seven criteria that new health promotion programs should strive to meet:

1. "The program should be an adjunct of the company's health program.
2. It should include a medically-oriented screening test as a criterion for participation.
3. A person skilled in prescribing exercise should direct it, preferably an exercise physiologist.
4. Exercise should be tailored to the individual participant, and should be progressively more strenuous, in order for him to benefit by it.
5. Activities should be noncompetitive; individuals should compete only against their own performance, not against other participants in the program.
6. A system of periodic evaluation should be included to measure progress and aid in program design" (Shepard, 1975).
7. The major emphasis should be on aerobic/endurance activities with three one-hour periods per week as the optimum dosage (President's Council on Physical Fitness and Sports, no date).

This criteria will give the foundation for development of a sound health promotion program. The criteria will be explained in further detail throughout this section. An important criteria not included by the President's Council is any participant who becomes involved in the exercise

component should receive a medical check-up from his or her doctor (Beaman, 1983).

The initial phase or pre-screening phase of a school health promotion program should be one of "awareness" (Ware, 1981). Key concerns here are: commitment, by management and employees; management's role, by school administration; and the development of a wellness committee. The entire success of the program rests at this stage because management is approached and foundations are laid for planning and implementing (Gore, 1979).

It is imperative for leaders and decision makers in the school to make a commitment for the program in terms of time, resources, and budget (Bellingham, 1982). Andrew J. Brennan (1981), the Director for the Health Help Center, Metropolitan Life Insurance Company, states that commitment is "vital". The potential for success comes with support from the administration. "The commitment must be for a significant duration and must include sufficient funding to get desired tasks accomplished." For meaningful results, Brennan believes that the health promotion program has to be in force for three or four years.

Without a commitment that includes resources, the program will probably suffer because the finances and personnel are not available. A negative atmosphere results, and enthusiasm never heightens (Allen, 1981). A high level of employee participation depends largely upon top

administrative support. Once this support has been achieved, emphasis can be turned to employee motivation.

School leaders must not expect wellness programs to be a substitute for good management. Wellness cannot answer all the problems facing the administration, but both the health and morale of faculty and staff members can be improved through health promotion activities. If sound management practices are observed, the opportunities for success in all areas of employee concern can be realized. For continuance of administrative and employee commitment, programs must be interesting, timely, accurate, and meaningful. If needs are not met and expectations unrealistic, the commitment will fade quickly (Brennan, 1981).

Administrators in the central office of the school system should also be involved with plans for the wellness program. Central office personnel and staff-development individuals, due to their job descriptions, are inherently motivated to make a commitment to support health promotion programs. Their key concerns are employee well-being, professional improvement, and lower health care costs.

Management plays an important role. They furnish the atmosphere for "social" support because they set the tone for everything that occurs in the school. The major fact that they care and that colleagues are attempting to make lifestyle changes gives faculty and staff members a great deal of inner strength to change personal attitudes about

health. Building confidence and commitment to change and maintaining that change will depend largely on management's support and co-workers involvement (Farquar, 1981).

The initial phase includes the development of a wellness committee within the school, consisting of teachers, administrators, staff-workers, custodial workers, cafeteria personnel, nurse, community people, and even students. This group should "educate" itself about the school's relationship to healthy lifestyles this includes: risk factors of smoking, obesity, high blood pressure, inactivity, stress, ect. The group can relate these to the absentee rate and needs of the staff for a wellness program (Farquar, 1981).

An excellent process to obtain this data is the Health Risk Appraisal (Health Risk Appraisal: An Inventory, 1981). This tool uses a questionnaire that can be supplemented with appropriate laboratory tests for screening individual risk of cardiovascular disease, cancer, stroke, mental health-related problems and accidents (McGill, 1979). The health risk appraisal includes height, weight, blood pressure, cholesterol level, carbon dioxide level (Gore, 1979), pulse rates, body measurements (Shepard, 1975), among others. This appraisal should also cover the participants' past medical history (Gore, 1979).

The wellness committee should select a chairperson who will oversee the implementation of the program. A knowledgeable and competent leader who is committed to the program should

be recruited and trained. This individual needs to become involved with the wellness movement sweeping the nation today. Attendance at workshops, conferences, and health promotion coursework should be encouraged. This leader's motivation alone, at times, will insure the continuance of the program (President's Council on Physical Fitness and Sports, 1980).

The American Association of Fitness Directors in Business and Industry agree that the program leader depicts success or failure. The following points are made by the AAFDBI in assessing the leadership role:

The Leader

1. must be "inspired and inspiring."
2. must be willing to give the amount of time, energy, and creativity needed to accomplish the task.
3. must "cater" to the school administration and be very "persuasive."
4. need to use creative imagination in promoting the program (personal interviews, school bulletin, etc.).
5. must schedule programs and oversee them.
6. is responsible for implementation and coordination.
7. must have the ability to "motivate" people.
8. in a school setting, must be willing to sacrifice time with little or no pay (AAFDBI, 1983).

The committee's final task would be to formulate needs into program objectives and to carry out the implementation

of the program. Considerations should be given to a possible pilot program the first year (Farquar, 1981).

The following is an example of a structured program for health promotion that could be utilized by a wellness committee in a public school setting:

1. "Development of a complete health profile focusing on cardiovascular risk factors and chronic health problems.
2. A nutrition program whereby participants eat and learn how to prepare meals that are low in total and saturated fats, cholesterol, refined sugars and animal protein, and high in fiber, vegetable protein and fruits.
3. A weight management program that stresses learning and practicing good nutrition and exercise rather than periodic dieting.
4. An exercise program initiated with a treadmill test and followed by individualized exercise to reduce cardiac risk.
5. A smoking cessation program using proven behavioral techniques.
6. An extensive education program focusing on risk factors and each individual's ability to reduce risk and related illness.

The emphasis is on helping participants identify barriers in their own life, to sustain change, and to provide them with the tools to overcome these barriers. Individual psychological counseling and peer support groups focus on the home and work environments and how lifestyle changes can become permanent." (Felding, 1980).

Once the committee has developed a basic program for implementation, it must develop avenues for involving the faculty and staff. The first step in this process would be

to provide introductory workshops where wellness concepts could be presented (Bellingham, 1982). Employees would be shown a comparison of how sound health practices can reduce the risks of disease and morbidity. This presentation should be followed by a discussion of the process in making a change for better health and modification of present lifestyles (Gore, 1979). This type of workshop can help motivate faculty and staff members in developing group support and setting goals (Bellingham, 1982).

Workshops should stress components of the program and expectations for those programs. A tactful presentation will turn faculty and staff members on -- and not "off." It is important to stress that there is no free and easy, or "instant", way to good health. Awareness as to individual commitment and understanding of the program is very important. An example is a typical cardiovascular fitness workout. In presenting the concept of cardiovascular improvement, prospective participants need to be made aware that the heart rate must be elevated and maintained for a period of time to achieve a training effect (President's Council on Physical Fitness and Sports, 1980).

Other avenues to provide introductory information concerning the program include: public meetings, slide presentation, brochures, newsletters, large art displays, posters, campaigns, announcements, and media messages (Gore, 1979).

When stressing employee involvement in the wellness program emphasis should be placed on the term "voluntary." Mandatory programs defeat the entire purpose of the wellness concept. It adds coercion and threatens individual rights (Brennan, 1981). Encouragement is the best word to describe management's role (Gore, 1979). Bellingham (1982) states that many program coordinators have the attitude "let us do it for you." This is not the most effective approach. People like to make their own health decisions. A better approach for administrators should be "What can we do together?"

Important in faculty and staff involvement is personal information gathered should be kept confidential and mailed directly to the employee's home if applicable. Employees need to be assured this at the outset of the workshop meetings. Sometimes high risk for disease information should not be accessible to employers or management (Gore, 1979). Credibility for the program is fostered through respect for individual confidentiality.

The implementation of a health promotion program involves decisions on which method of implementation is best, incentive policies, and provisions for those who cannot attend scheduled sessions. Three key approaches to implementing a wellness program in a public school setting are: the pilot approach, the phased-in approach, and the immediate implementation of the total program approach. As expected, each has its strengths and weaknesses. The

wellness committee should select from these or develop an alternative that is most appropriate to the faculty and staff's needs.

The pilot approach can be used for components of the program (e.g. nutrition exercise, weight control) or for the complete program. Usually it is directed at a target group, has specific outcomes, and is evaluated on the basis of meeting these outcomes.

The phased-in approach brings the program into the school either on a limited basis or in sequences over a period of time. Sometimes this phase is preceded by a pilot program, but not always. The advantages of a phased-in program allows for realistic expectations for the development and growth of the program.

The immediate implementation of the total program approach is a full-scale commitment to bring all components into play at once. This makes the program very visible and open to all. Its disadvantage is the possible financial commitment that must be made and evaluation of all components is difficult (Cunningham, 1980).

In implementing the program, the wellness committee should review ideas on establishing incentives. Medals, silver trophies, and money are not realistic incentives for a health promotion program. Small tokens that recognize personal achievement are important (President's Council on Physical Fitness and Sports, 1980). Some examples are:

1. Contingency contract - faculty and staff members reward themselves for attaining specific goals (Farquar, 1981);
2. program certificates;
3. participation pins;
4. t-shirts;
5. organized competition; and
6. special events (President's Council on Physical Fitness and Sports, 1980).

Not every employee will be available for formal sessions. Some faculty and staff members have other commitments, but if a program is properly implemented, information should be available for everyone (Farquar, 1981). This can be accomplished by making self-help manuals and formal presentation material available for those who wish to make changes on their own (Bellingham, 1982).

An important aspect of any health promotion program is evaluation. Evaluation will give an indication of how well the goals and objectives for the program have been met. It can indicate participation level, achievements and costs (Brennan, 1981). The evaluation process should include detection of short and long term changes as well as "the impact of program components" to individuals, and to the organization (McGill, 1979).

Generally, the program should be assessed according to these educational outcomes:

1. Raise awareness:

Did faculty and staff members become conscious of their state of health?

2. Increased knowledge:

Did the faculty and staff gain increased information about a particular disease or health topic?

3. Change behavior:

Did employees do something about their state of health? (Ware, 1981).

Specific evaluation should include the following:

"Biomedical-

1. reduction in premature mortality
2. prevalence of risk indicators

Economic-

1. reduction in absenteeism
2. increased productivity
3. reduction in disability, hospitalization, and ambulatory care costs
4. reduction in insurance premiums." (McGill, 1979).

Work Environment

Program success can be measured through attitude changes which appear in the overall school climate to include working relationships (Bellingham, 1982).

Evaluation methods must be selected from program outcomes the committee wishes to measure and "their corresponding standards of acceptance." Choose evaluation designs that can provide the necessary data to determine whether or not the program is reaching its objectives (Cunningham, 1982).

An excellent process tool for evaluation is "The Wellness Cycle" (Health Insurance Association of America and the American Council of Life Insurance, 1985). If a program has touched the six steps outlined in the cycle, the opportunity

for success has been greatly enhanced. Figure 5 shows the wellness cycle diagram.

Step one includes medical screening to identify unacceptable risks for certain individuals. Consultation with the medical community is advantageous for identifying and screening criteria.

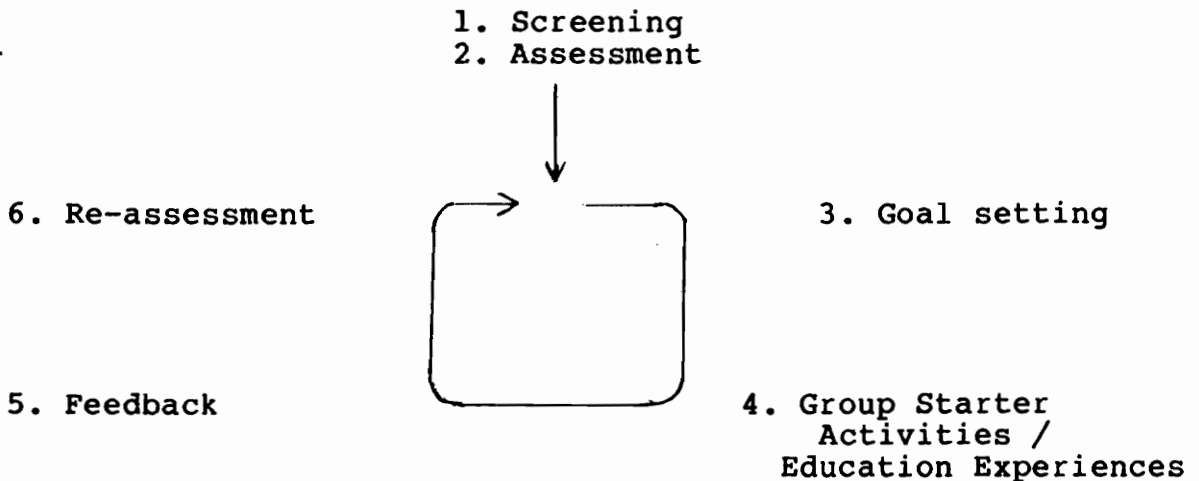


FIGURE 5
Wellness Cycle Diagram
- Health Insurance Association of America and the
American Council of Life Insurance 1985

Assessment or needs survey is step two. There are numerous wellness inventory instruments - e.g. Wellness At the School Worksite, (1985) page 28-29 - that will provide data necessary to formulate goals, step 3. Staff members should decide their goals in areas related to health promotion - fitness, nutrition, stress reduction, and health and safety.

Activity selection and program scope, step 4, is the natural extension of goal setting. A simple program could involve an aerobic exercise session twice a week and seminars to compliment and reinforce healthy lifestyle choices.

Step 5, feedback, is the monitoring process in reaching for announced goals. Organization and motivation needs are important facets to consider.

The final step is to measure attainment of goals by reassessing baseline data and deciding whether to re-align goals or establish new goals.

In conclusion, worksite health promotion programs have developed from specific needs facing employers across the nation. Rising health care costs, low productivity, absenteeism, and sickly employees have been very realistic concerns. The worksite can serve as a setting for wellness programs in both industry and public schools. High school faculty and staff members must be encouraged to assume greater responsibility for their own health maintenance. This section has dealt with the strategies involved in development of a worksite wellness program in a typical American school.

The major goal of any health promotion program is to have employees become more aware of healthy lifestyles and place a priority in developing lifestyle changes in their own lives. Benefits of this type of program to the school and its employees will be derived only if the program: is carefully planned; has manager and participant commitment;

needs are assessed; criteria is established; a committee and leadership are developed; implementation is successful; and evaluation is objective.

This framework for program implementation is worthwhile only if creative effort is developed to motivate individuals to become aware of health maintenance. It can result in "quality life." It is a challenge to all management in accepting their responsibility to their employees not to remain "status quo." Settling for less, has not been the American way and should not be so in the development of worksite wellness programs.

Experimental Research Undertaken at the School Worksite

Wellness has been studied in a variety of worksite settings. The following research relates specifically to schools.

A 1984 study (Townsend) indicates a majority of Texas public school personnel administrators were in favor of wellness programs for their districts. Seventeen districts had structured wellness programs for teachers and staff employees. The personnel administrators concluded from subjective evaluations that job performance was greatly enhanced and district operating expenses reduced.

The health awareness program undertaken recently in the Dallas Independent School District is perhaps the most widely publicized study in an attempt to decrease worker

absenteeism (Collingwood, 1984). The initial component of this study was a pilot program that utilized a quasi-experimental design incorporating three experimental schools and one control school within the Dallas, Texas Independent School District.

Volunteers were solicited to formulate a list of participants. Individuals were then randomly selected from this list. Of the 323 teachers on the experimental school list, 87 were selected, and thirty out of 75 volunteers were selected from the control school. The average age was 38 years; 73% were women; 62% were white, 26% were black, and 12% were Hispanic (Collingwood and the Others, 1982).

Dallas Independent School District chose the Personalized Aerobics Life-Style System as a model for their wellness program. It consisted of eight components: 1) medical screening and health risk approval; 2) fitness assessment; 3) goal setting for individual health improvement; 4) exercise and nutrition prescription; 5) health education class; 6) exercise class; 7) motivation in the form of t-shirts, report cards, and awards; and 8) weekly written analysis of progress for feedback (Collingwood, 1984). This program was developed by aerobics expert, Kenneth Cooper. Each school participated in the ten to thirteen week program on their own campus (Holroyd, 1983).

The study was evaluated on pre and posttest measures of fitness knowledge, health and fitness status, lifestyle,

attitudes, and ability to manage stress. Fitness knowledge was assessed by a 30-item multiple choice test (Collingwood and Others, 1982). A self-administered seven-day measure of physical activity was used to assess exercise participation. Lifestyles and attitudes were measured by questioning participants and through the use of the Brayfield and Rothe Job Satisfaction Index (Blair and Others, 1984) and the General Well-Being Schedule (GWBS). A nine-item checklist was used to assess the employees' ability to manage stress. Absentee rates were also compared (Collingwood and Others, 1982). Data was collected on pretest and posttest measures on standardized forms and reviewed by the Dallas Institute for Aerobics Research. The effect of the wellness program on the measures was determined by examining differences between treatment and control groups. Continuous data was determined by t-tests and categorical data by chi square analysis. Changes in the several scales of well-being and self-concept were evaluated by multiple analysis of co-variance (Blair and Others, 1984).

According to Thomas Holroyd (1983) the results can be assessed on the basis of how the participants changed. They felt better about themselves, they could handle school-related stress more effectively, and communicated more positively with students. Blair (and Others, 1984) reported that teachers in the treatment group appeared to increase their fitness knowledge, exercise participation, treadmill

time, and physical fitness, and decreased their body fat levels. An improvement by the treatment group was also indicated on general well-being, job satisfaction, and self-concept scales. The stress management and job-performance variables were analyzed by t-tests and indicated significantly higher (better) scores for treatment groups. Self reports of treatment group teachers found 44% changed their overall lifestyle, 68% changed their diet, and 18% quit smoking.

Other interesting data also resulted from this study. Nearly half a million dollars were saved in substitute teacher's pay due mainly to a 35 percent drop in absenteeism - "from 8.3 to 5.8 days per teacher per year - resulting in savings of \$452,000" to the school system. Other reported results were:

- "Reduced smoking;
- Decreased weight and body fat;
- Decreased systolic and diastolic blood pressure;
- Increased physical activity and exercise;
- Increased use of balanced diet;
- Decreased levels of anxiety and depression;
- Increased sense of personal well-being;
- Reduced health care claims;
- Improved morale;
- Increased productivity;
- Improved instructional quality - due to better teacher morale and more time on task with students"

(Health Insurance Association of America and the American Council of Life Insurance, 1985).

Calder (1984) completed a stress intervention program between 1982 and 1983 with 1730 volunteer teachers from the Dallas Independent School District. Pre and Post assessments on physiological (systolic blood pressure and total

treadmill time) and self-reporting psychological measures (well-being, job satisfaction, self-concept, energy, health, strain, job happiness, and happiness in general) were reported. The treatment intervention consisted of nutrition analysis, health education, exercise, and individual counseling to establish stress management goals. Calder found that higher stress levels had links to demographic characteristics of the teachers (race, teaching experience, and gender) and to characteristics of their work environment (school size, grade level taught, and racial composition of the school).

In 1983, Anna Mitchell undertook a study to assess the effects of a wellness program on secondary teacher's management of job related stress. The participants were 127 teachers from 5 high schools who volunteered to abide by the stated conditions. The experimental group consisted of 58 individuals who received regular exercise and aerobic exercise programs as the wellness intervention modality. The control group was composed of 56 participants who did not formally exercise during the 20-week experiment. The Maslach Burnout Inventory (MBI) and the Schedule of Recent Experience (SRE) were the dependent variables to measure stress management. A post-hoc ANOVA comparison, revealed only one significant difference that was not directly related to the wellness program effects. Mitchell states

that of the 58 teachers who began the wellness program, 23 dropped out before posttest measures.

The high attrition rate and poor variety of activities included in the wellness program could be reasons for the poor results. Mitchell recommended further study (Mitchell, 1983).

Mitchell's study is contradicted somewhat by Garber's (1984) recent research involving a seven-week aerobic exercise program. In his report to the American College of Sports Medicine on May 24, 1984, Garber reported that his conditioning program had significantly lowered responses to mental stress as measured by a mental stress test. Heart rate, blood pressure, and other factors were utilized to reflect stress levels.

The effects of stress management training, a component of wellness, was assessed by Sharp (1982) in her study of sixty volunteer public school teachers over a four week period. The assessment measure used for treatment effects was the State Trait Anxiety Inventory (STAI). The Teacher Anxiety Observation Scale was also used to measure teachers' responses to student behaviors. Results showed the control group had remained unchanged on all measures and the treatment groups indicated that the stress management training lowered teacher anxiety and produced an improvement in teacher classroom responses.

Forty-two volunteers from the Greensboro, North Carolina, Public Schools system were used in Oakland's (1981) study on stress levels in public school teachers. He measured various self-control relaxation strategies (i.e., progressive muscle relaxation training and relaxation response training). A control group was also used. Blood pressure, heart rate, and the State-Trait Anxiety Inventory (STAI) were included as dependent measures. Both groups who were trained in relaxation for five weeks showed "Significant decreases in self-reported state anxiety when compared to the control group."

Croyle (1982) also found positive results in stress reduction due to progressive muscle relaxation techniques. He expanded this approach to include distress prevention that involved the following wellness components: time management; diet-control; learning exercise habits; and understanding the dynamics of life contributing to stress. Croyle studied twenty-five teachers who were trained during five three-hour workshops. The Teacher Stress Survey, a 50 item Likert type scale, was used to measure educational stress. Pre and post Teacher Stress Survey results were analyzed by a t-test and indicated a "significant decrease in scores -- suggesting vulnerability to stress decreased" after participation in the intervention program. Croyle's major recommendation is that a variety of approaches be integrated in order to cope with occupational distress.

Murray's (1983) study of stress management training revealed a lack of significance due to the short treatment intervention time period and small sample size. He also felt the State-Trait Anxiety Inventory was too broad to produce meaningful results. Toridor's (1984) study involving knowledge, attitudes, and behaviors related to wellness also suggested a greater time span.

Payne-Gair (1983) found no change in stress levels in her study that was designed to "evaluate stress-management training." A Wellness Questionnaire (WQ) was also administered to the sample to indicate levels of health. The results showed no change in health levels.

The effects of an eight week wellness program on 139 staff volunteers from a suburban school district (K-12) was studied by Wynfred Chilton (1983). Physical fitness and well-being were assessed by pretest and posttest measures. There were two treatment groups who were involved in a program of exercise, nutritional practices, and stress control strategies. Chilton reported "significant changes in mental and physical health." He also emphasized that "staff members become models for wellness and enthusiasts for the benefits of such programs."

Prothro (1984) used a modified time series design to measure behavior change and stress level. Treatment consisted of a holistic stress management program. Assessments, pre and post, included blood pressure readings, heartrate

measures, and the State-Trait Anxiety Inventory. Along with these quantitative dependent variables, qualitative assessments in the form of observed behavior change were considered.

T-test analysis produced no significant differences, but qualitative analysis suggested "that psychological stress was greatly reduced." Prothro did recommend a change in his original design in order to enhance experimenter control.

The review of relevant research in regards to school worksite wellness programs is minimal. Some of these studies cite significant effects on teacher health related attitude and behavior as a result of implementation of a health promotion program. Others' studies are vague in documenting significant results. The Dallas Independent School District Study is on the forefront of effective studies. Croyle and Chilton studies have positive results and recommend further study with more elaborate programs. Mitchell and Murray found no significant results in their studies.

Summary

Wellness is a comprehensive and integrated method for providing individuals the opportunity to maximize potential and make appropriate healthy lifestyle choices. The rationale for developing the wellness concept at the worksite lies in the alarming health care cost to employers. Health insurance claims, loss of productivity, absenteeism,

chronic disease, and countless other factors could all be addressed by a sound program of health promotion activities.

There will be a growing demand in the future from employees for companies, especially smaller companies, to provide fitness, health, and recreation services (DeCarlo, 1982). This growth will be evident in the public sector also, to include schools. Both employees and employers must provide sufficient commitment to insure the start or continuation of a wellness program. Administrators and business executives must be willing to support programs and provide personnel and materials or equipment to assure success. Enthusiasm has to be generated on all levels (Allen, 1981).

Today, health promotion is at a crossroads ... promises seem greater than the results. For a successful future, wellness programs will require careful and thoughtful steps to "establish efficacy, provide choice, and encourage self responsibility and social accountability" (Polakoff, 1982). A creative atmosphere for new ideas, such as computerized fitness programs (Hudson, 1982) must be encouraged and those who plan and facilitate wellness concepts must be willing to accept and identify why programs fail, as much as they rejoice when they succeed. If these avenues are left open, then wellness programs can achieve their primary goal: "to truly enhance people's opportunities for a healthy, happy, and productive life" (polakoff, 1982).

By promoting the wellness concept and through the education of employees, a school can encourage individuals to make "positive choices about their health" (Kaldy, 1985). The nice thing about wellness is the fact that whether you are a man, woman, athlete, office worker, custodian, or teacher, you can join (The John Hancock Mutual Life Insurance Company, no date). The information presented in this chapter has asserted the fact that the lifestyle choices we make, strongly affects how long (quantity) and how well (quality) we live. We are responsible for our health ... our well-being.

CHAPTER III
RESEARCH METHODOLOGY

Introduction

The purpose of this research investigation was to assess the effects of a structured wellness program on the physical and mental well-being of public school faculty and staff members. The design for this study was constructed in order to provide relevant data for statistical analysis without disrupting the education process within the school. Faculty and staff members are held accountable for, and should always foster as their number one concern, the education of young minds. This design incorporated no loss of instructional time due to the implementation of a wellness program at the school worksite. Testing and data collection also did not infringe on instructional time. This study was approved by the central administrative staff of the Chesapeake Public School System.

The methodology outlined in this chapter provides a unique approach in assessing the effectiveness of an in-house wellness program. Following an outline of the actual design there will be a statement of the hypothesis and research questions. The remainder of this chapter will include: the components of the wellness program;

research instruments; procedures; statistical treatment of the data; delimitations; and limitations.

Research Design

A Nonequivalent Control Group Pretest-Posttest Design (Figure 6) was selected for this study due to the existence of preassembled groups. The faculty and staff members of a large elementary school were divided into two groups according to their availability during the first half or second half of the 1985-1986 school term.

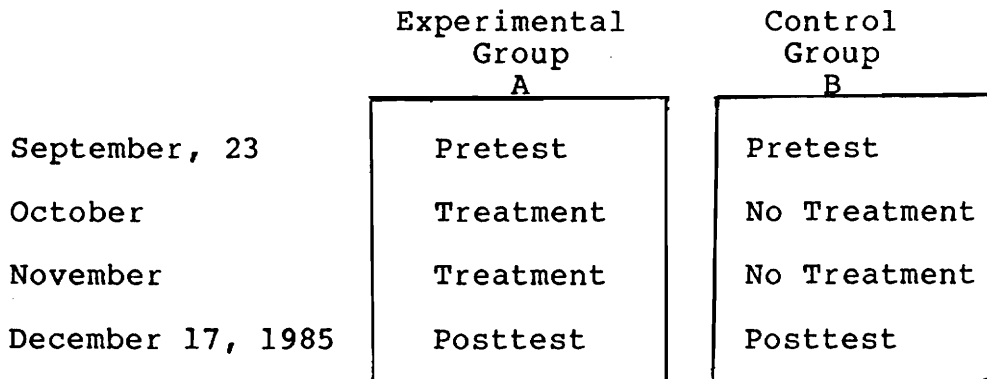


FIGURE 6

NONRANDOMIZED CONTROL-GROUP PRETEST-POSTTEST DESIGN

Group A and Group B were pretested on mental well-being, stress, job satisfaction and physical well-being. Group A then underwent a twelve week wellness program. Group B received no treatment. At the conclusion of the twelve

week program, both groups were given a posttest in the four assessments previously identified.

Following this initial phase, there was a variation of the original design to incorporate a repetition of the treatment intervention on the control group. The control group underwent a replication of the twelve week wellness program (Figure 7...D). The former experimental group (C) received no treatment. Following this twelve week period, both groups were administered a posttest on the four dependent variables.

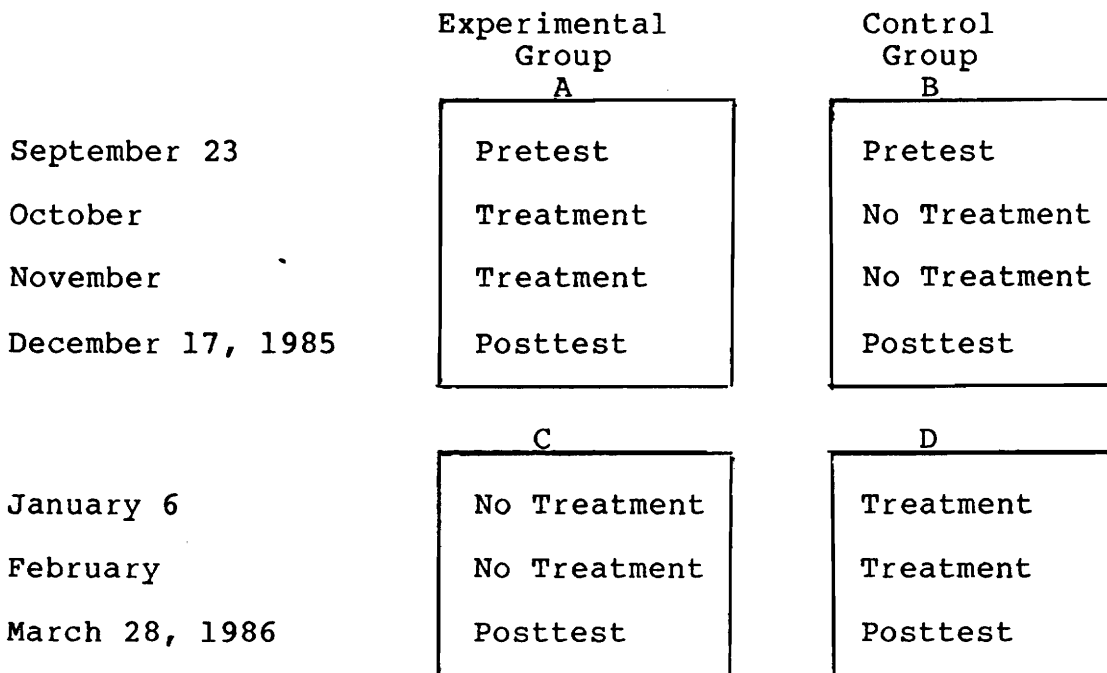


FIGURE 7

NONRANDOMIZED CONTROL GROUP PRETEST-POSTTEST DESIGN EXPANDED

The expanded design enabled the investigator to replicate the initial research question. This was accomplished

by using the treatment interaction on the control group (D). Tabulation of the final posttest in March provided insight to the treatment's effect on the first group (C) after a twelve week extinction period. A and C are the same groups of faculty and staff members as are B and D.

Hypothesis and Research Questions

Hypothesis

A twelve week structured wellness program directed at a change in lifestyle will have a significant effect on the personal health attitudes of elementary school faculty and staff members.

Research Questions

This study was designed to answer three research questions:

1. A twelve week structured wellness program directed at a change in lifestyle can produce significant changes in the physical well-being (as measured by resting heart rate, resting blood pressure, and skin fold calibrations), and mental well-being (as measured by the General Well-Being Schedule, the Trait-Anxiety Subscale of the State-Trait Anxiety Inventory, and the Brayfield and Rothe Job Satisfaction Index) of elementary school faculty, staff, and support personnel (A - B, Figure 7).

2. A twelve week structured wellness program directed at a change in lifestyle will produce similar results if

replicated with a different experimental group of faculty and staff members (A - D, Figure 7).

3. Three months after the extinction of a twelve week structured wellness program, 75% of the participants will continue with 90% of the activities appearing in the wellness program (A -C, Figure 7).

Population

This study was conducted with the faculty and staff members of Georgetown Elementary School during the 1985-1986 academic school term (August 29 - June 13). Georgetown is the largest elementary school in the Chesapeake (Virginia) Public School System, with 912 students. It houses kindergarten through fourth grade. There were 71 faculty and staff members at this school. The experiment was open to all teachers, aides, administrators, secretaries, cafeteria personnel, custodial staff, and support personnel that were assigned to this particular school. The actual population studied were all of the above school personnel who volunteered for participation in the health promotion program.

From the volunteers, two groups were created at the beginning of the school year. These individuals were asked which in-house wellness program session they would be available to participate in: September 23 through December 17, 1985, or January 6 through March 28, 1986. The group

that chose the first twelve week wellness program became the experimental group and those that chose to participate during the second twelve weeks became the control group. The control group for the first run of the wellness program thus received the treatment during the second run.

Prior to the first treatment intervention, all participants were administered the Wellness Activity Inventory (Appendix A) to assess their current involvement in health promotion activities and lifestyles. To assess pre-existing differences in their working relationships at the school, each participant was administered the Work Relationship Survey (Appendix B). This instrument was designed to measure factors directly related with in-house working relationships between the participant and his or her attitudes about: 1) peers; 2) school administrators; 3) students; 4) parents; 5) teachers; 6) personal work habits; and 7) professional or work affiliations. It also gave an indication of attitudes about their concept of wellness.

Borg and Gall (1983) stress the fact that experiments should be more "representative of the natural environment". With this in mind, the researcher selected a population that would volunteer to engage in a structured health promotion program that included an exercise component. The goal then was to investigate the faculty and staff at one public

school worksite where work related experiences are directed at meeting shared expectations.

Wellness Program Components

The Wellness Program included a variety of activities and educational seminars to highlight the health preventative approach to lifestyle management. The various topics and exercise modalities, selected for this investigation, encouraged the participants to self-motivate themselves to understand wellness and to enjoy doing something healthy for their minds and bodies.

There were four major components of the twelve week wellness program:

1. Two weekly aerobic exercise sessions ... every Tuesday and Thursday.
2. Wellness seminars on healthy lifestyle topics.
3. Health promotion handouts and incentives
4. Governor's Physical Fitness Award Program for School Personnel ... including an activity log submitted at the end of the twelve week wellness program.

Two Weekly Aerobic Exercise Sessions

The ideal activity for an exercise component is aerobics. Aerobics is basically endurance training made famous by Dr. Kenneth Cooper (1968). Aerobics is rooted in Greek dialect, meaning "air and life" (Research, 1982). Dr. Cooper found significant results in reducing the risk

factors to good health. Numerous physical benefits to vital organs can also be a benefit. Aerobic training involves activities which raise the heart beat for at least twenty minutes over a period of time. A time span of six weeks is suggested to produce significant training effects.

Aerobic activities affect the following body components: (Rawls and Richards, 1983).

1. Lungs - Aerobics strengthens muscles around the lungs and diaphragm which allows more oxygen to be taken into the lungs for use by the body and more carbon dioxide to be expelled out of the lungs. This process allows for a greater endurance capacity to perform over long periods of time without being fatigued.

2. Blood composition - More blood is produced which increases the hemoglobin count of red blood cells meaning more oxygen can be transported to the working muscles. Increases account for the capacity to expend larger quantities of energy.

3. Blood vessels - Tissue vascularization (improved blood flow) opens new networks of capillaries which has a tremendous effect on blood pressure. The lowering of blood pressure is caused by blood vessels becoming more pliable allowing lesser resistance to blood flow. Existing blood vessels are also enlarged by aerobic training. This training effect significantly lowers the risk of heart attack.

4. Heart - The heart is a muscle which becomes larger and stronger through aerobics training. The amount of blood ejected from the heart with each beat is increased. This increased stroke volume lowers the pulse rate, making the heart a more efficient machine. With aerobics training, the heart is developed into a healthy muscle that works more effortlessly during moments of relaxation or moments of peak physical exertion. This allows the heart to maintain large reserves of power to handle physical or emotional stress.

The treatment group will participate in aerobics activities every Tuesday and Thursday for 50 to 60 minutes each session. Chesapeake General Hospital's Lifestyle Plus Center will teach each session with certified instructors who will utilize the AEROBEX (TM) program (Walton, 1984). Aerobex is derived from two words, aerobic and exercise. It is a total fitness program designed to

"condition the heart, lungs, and entire circulatory system, while at the same time concentrating on the strengthening and stretching of all major muscle groups of the body" (Aerobex (TM) Fitness Enterprises, Inc., 1983).

Components of this program include:

Phase 1 - Pre-warm up and stretching 9-12
minutes;

Phase 2 - Abdominal/postural strengthening
exercises 12-16 minutes;

Phase 3 - Aerobic/calisthenic activities

12-16 minutes;

Phase 4 - Cool down 6-8 minutes.

These components comprise a unit designed for a twelve week continuum.

Each individual had been requested to obtain a physical before beginning the program. In order to achieve a training effect from the aerobics activities, each participant was encouraged to push their heart rate into what is termed the "target heart rate" zone. The ideal level for beginning a program is 70-85% of the maximum heart rate reserve. This 70-85% range is the target heart rate. A newcomer should target the 70% range and build to the 85% range. Training heart rates were calculated by using the following formula: Subtract present age from the number 220. This gave the participants their approximate maximum heart rate per minute. This number was multiplied by .70 (.75 if the subject had been training aerobically; .65 if the subject smokes or is 20 pounds or more overweight). The result represented the training heart rate, "the number of times a minute the heart should beat to maximize training effects" (American Running and Fitness Association, 1977).

Another method to assess target heart rates was an adaptation from the publication, Exercise and Your

Heart, published by the National Heart, Lung, and Blood Institute (1981).

To find a target heart rate, a participant had to use the chart in Figure 8 and find the age category closest to their age. For example, if a participant's age was 30, their target rate was between 224 and 142 beats per minute. If their age was 42, the closest age on the chart was 45; thus the target rate was 105 to 131 beats per minute.

Age	Target Rate (60-75%)	Average Maximum Heart Rate (100%)
20 years	120-150 beats per minute	200
25 years	117-146 beats per minute	195
30 years	114-142 beats per minute	190
35 years	111-138 beats per minute	185
40 years	108-135 beats per minute	180
45 years	105-131 beats per minute	175
50 years	102-127 beats per minute	170
55 years	99-123 beats per minute	165
60 years	96-120 beats per minute	160
65 years	93-116 beats per minute	155
70 years	90-113 beats per minute	150

FIGURE 8

HEART RATE CHART
-National Heart, Lung, and
Blood Institute (1981)

Wellness Seminars on Healthy Lifestyle Topics

The Western Tidewater Area Health Education Center (AHEC) coordinated six professional health promotion seminars during each twelve week wellness program.

The same seminars and presenters were used for both wellness program runs (September 23 through December 17 and January 6 through March 28). These presenters were selected because of their expertise in selected health related fields.

The Eastern Virginia Area Health Education Centers Program is an educational outreach program that links five health professions schools with the needs and resources of surrounding communities. The five schools are Eastern Virginia Medical School, Hampton University, Norfolk State University, Old Dominion University, and Virginia Commonwealth University. The central Eastern Virginia AHEC office is at the medical school. Satellite or regional AHECs, on the Peninsula, in Norfolk and Western Tidewater, have their own attachment areas and governing boards. The board members are community leaders and health professionals.

Western Tidewater AHEC covers Chesapeake, Suffolk, Isle of Wright, Franklin, Southampton County, and the Eastern Shore of Virginia. The overall goal of AHEC is to use educational programs to improve the quality, distribution, availability, utilization and efficiency of primary health care delivery. This research investigation incorporated the services of Western Tidewater AHEC's Chesapeake office with the support services of its Health Education Coordinator, Joy Walton. As an independent agent,

she organized most of the intervention and assessment activities.

The six wellness seminars were directed at mental and physical well-being. The presentations involved group interaction with an emphasis on relaxing and getting the most out of life. The following seminar schedule was utilized for each twelve week wellness program. Each seminar was scheduled at approximately the same time frame for both wellness program runs:

1. Wellness Overview and Relaxation - Dr. Paul D. Heinen (Old Dominion University, Norfolk, Va.) and Lorna Pierce (Ghent Psychological Practice, Norfolk, Va.)
2. Turnaround Workshop ... Nutrition - Peggy Thomas, R.D. (Supervisor, Food Services, Chesapeake Public Schools, Chesapeake, Va.)
3. Maximum Benefit from Exercise and Injury Prevention/Exercise and Weight Control - Becky Walton, M.S., R.D. (Director, Lifestyle Plus, Chesapeake General Hospital, Chesapeake, Va.)
4. Healthy Back - Herman West (Physical Therapist, Chesapeake General Hospital, Chesapeake, Va.)
5. Wellness Lifestyle - Dr. Kim Fuller (Chiropractor, Chesapeake Chiropractor Center, Chesapeake, Va.)
6. Cardiovascular Diseases - Dr. Joseph A. Robbins (Cardiologist, Cardiology of Tidewater Ltd., Chesapeake Medical Center, Chesapeake, Va.) and Lem Lem Tsegay, R.N.,

Supervisor of the Healthy Blood Pressure Control Program,
DePaul Hospital, Norfolk, Virginia.

Health Promotion Handouts and Incentives

Health related material that emphasized lifestyle changes or that provided information participants could use to make a personal healthy lifestyle change, were provided each member of the group. A total of 18 handouts were placed in each teacher's or staff member's in-house mail box approximately every four to five days. The following topics were given to participants through handout material (Sample found in Appendix C):

1. Exercise
2. Smoking
3. Stress Reduction
4. Brisk Walking ("Wogging")
5. Relaxation
6. Heart Attack
7. Ten Commandments of Health
8. Nutrition
9. Type A and Type B Personalities
10. Diet
11. Safety
12. Resolving Conflicts
13. Nutrition
14. Managing Stress
15. Food Choices

16. Cancer
17. Colds
18. Personal Care

Handouts were also provided at the conclusion of the second aerobic session each week. A total of twelve handouts were given to the participants. Information from these handouts were similar to those just listed and reinforced positive health related behaviors.

In order to provide motivation, positive notes were placed in participant's mail boxes to encourage continued participation during the twelve week session. The following were provided as incentives:

1. Awards from the Governor's Physical Fitness Award Program for School Employees.
2. Wellness tee-shirts midway between each group's 12 week session.
3. A wellness party (with only nutritional foods served).
4. Aerobic heart rate chart, plotting participants heart rate each session.

Governor's Physical Fitness Award Program For School Employees

In May 1982, Governor Robb ordered that opportunities for all citizens of Virginia to participate in health and fitness activities should be supported by the Governor's Council on Physical Fitness and Sports. The State Department

of Education (Health and Physical Education Division) and Blue Cross/Blue Shield of Virginia developed a program "to encourage individuals that do not exercise regularly to begin and continue a program that will improve the condition of their cardiovascular system" (Governor's Council on Physical Fitness and Sports, 1982). Participants in this study were given an Activity Log provided by Blue Cross/Blue Shield of Virginia to record their weekly physical activities. Those who earned enough points qualified for an award. The appendix (Appendix D) contains a program overview, the activity log, the activity point chart, and the sample award certificate.

The Governor's Fitness Program served two useful purposes in this study. First, participants were requested to note all activities they participated in during their twelve week wellness program. The activity log was selected to record these activities. Included were recreation activities, jogging, health spa visits, etc. Participants were also requested to note any sickness, family illness, or other unexpected occurrences that might have affected the outcome of the study. Data noted in the activity log assisted the researcher in assessing unexpected results. Second, the Governor's program proved to be an incentive, thereby motivating the group to become more actively involved in lifestyle changes.

Research Instruments

Four instruments were used to collect data for this study:

1. General Well-Being Schedule (GWBS)
2. Trait-Anxiety Subscale of the State Trait Anxiety Inventory (STAI), also called the Self-Evaluation.
3. Brayfield and Rothe Job Satisfaction Index
4. Physiological Data
 - A. Resting Blood Pressure
 - B. Resting Heart Rate
 - C. Skin Fold Calibration

General Well-Being Schedule (GWBS)

The General Well-Being Schedule (Appendix E) was developed by the National Center for Health Statistics (NCHS) as part of a national study on well-being and distress. Between the years of 1971 and 1975, 6900 adults were assessed by the NCHS on how well they coped with life, especially in terms of mental and emotional health. Since that time it has been used in research to provide useful data in the measurement of population changes in regards to well-being over a period of time. This self-reporting instrument provides a total score, but is broken down into six subscales: health-worry, energy level, satisfying-interesting life, depressed-cheerful mood, emotional-behavioral control, and relaxed versus tense-anxious (Chilton, 1983). "The weakest meaningful property" of the GWBS involves these subscales and is the

reason why just the total score was used in this investigation. According to Chilton, there is a weakness in "differentiating the total scale into the six subscales".

Blair (1984) recently used this instrument in his study of 117 teachers of the Dallas Independent School District. Pretest measurements were taken on 87 volunteers from the treatment school. Thirty volunteers from another school became the control group. Following a 10-week wellness program, both groups were given a follow-up posttest. A t-test analysis indicated an improvement in the treatment group. Tindall (1982) found similar results with the same instrument in his study on stress. Chilton (1983) validated the GWBS before using this instrument in his wellness study. He set up a validating procedure for the GWBS along with the other instruments he was using. Chilton's procedures involved clinical psychologists' interviews of 195 students.

"The GWBS total scale had the highest correlations with the criterion (interviewer's ratings) of the scales compared. (Overall the scales were established as at the .01 level, or better, of correlation.)"

Chilton concluded that the GWBS was a homogeneous scale basically measuring a single dimension of general psychological state. As a "quality of life" index, this instrument is useful for measuring population changes to interpret well-being over time. This consistency provided useful data about the effects of a twelve week wellness program on

participants well-being. The GWBS was given pre and posttest to treatment and control groups, and the mean scores compare.

Trait Anxiety Subscale of the State-Trait Anxiety Inventory (STAI)

Spielberger describes trait anxiety as a rather stable individual characteristic and is actually associated with anxiety-proneness. He developed an instrument made up of twenty statements describing how an individual usually feels. The other component (state anxiety) of the STAI assesses how a person feels at a particular moment (Sharp, 1982). Spielberger (1983) prefers the term Self Evaluation rather than the STAI.

The Trait Anxiety Subscale of the State-Trait Anxiety Inventory (Appendix F) was used as dependent variable by Sharp (1982) and Oakland (1981) in their separate studies on strategies to reduce stress. Although not labeled a wellness intervention, many of the treatment modalities were similar to the activities used in this study. Murray (1982) used the STAI in his stress reduction study involving hospital staff members. Prothro (1983) studied delinquent female behavior and its relationship to stress. Her study involved a wellness intervention program and included measurement on the STAI.

A more recent study was published in the American Educational Research Journal by Theodory and Day (1985).

The STAI was administered to all the subjects. This study involved an examination of the "effect on students' grades of years of teaching experience and magnitude of trait anxiety in high and low scoring LPC professors." Theodory and Day describe the Trait-Anxiety Subscale as "correlating significantly with other measures of stress and anxiety," such as, the test by the Institute for Personality and Ability Testing (IPAT) ($r = +.75$) and the Taylor Manifest Anxiety Scale ($r = +.80$). Spielberger found the test-retest reliability of the Trait-Anxiety Subscale proposed for this study to be $r = +.86$ for males and $r = +.76$ for females. Alpha coefficients for the Trait Anxiety Subscale were equally high, ranging from .86 to .92. A high alpha reliability coefficient score (.75 with college females and .76 with college males) reflects a high degree of internal consistency (Spielberger, 1983).

Each elementary faculty and staff member in this research investigation rated 20 items on a 4-choice continuum. Examples of the choices were: "I am blue," "I feel rested," "I tire quickly," "I feel secure," and "I wish I could be as happy as others seem to be." The pretest and posttest mean scores were compared.

Brayfield and Rothe Job Satisfaction Index

The Brayfield and Rothe Job Satisfaction Index (Appendix G) was developed in 1951 by combining the

most widely known attitude scaling techniques (Thurstone and Likert) used during that time period. Brayfield and Rothe (1951) wanted an attitude scale that would permit a "quantification of the expression of feeling." They developed a scale of sensitive and realistic attitudes that would provide an index of job satisfaction. The scale consists of eighteen statements about jobs. Subjects selected from strongly agree, agree, undecided, disagree, or strongly disagree as to their feelings about their present job as it relates to the statement addressed. Brayfield and Rothe obtained a reliability coefficient of .87 when used in a study of 231 female office employees. When correlated with an instrument developed by Hoppick (Hoppick's Blank) a .92 was obtained.

The Brayfield and Rothe Job Satisfaction Index was administered in Blair's (1984) study of 117 teachers in the Dallas Independent School District. The variables were analyzed by a t-test and significantly higher scores were obtained by the experimental group that had undergone a 10 week wellness program.

Each choice on the Brayfield and Rothe scale are assigned a number: strongly agree - 5, agree - 4, undecided - 3, disagree - 2, and strongly disagree - 1. Mean scores were computed and compared pre and post. The results provided data that were statistically treated and analyzed.

Physiological Data

Resting Blood Pressure

Blood pressure "refers to that pressure which is exerted by the blood against the walls of the arteries, as blood is propelled by the heart through the arterial vessels into the capillaries" (Brest and Moyer, 1977).

Blood pressure is measured when the heart muscle is contracted - systolic blood pressure. When the heart is relaxed between beats, diastolic blood pressure is measured. Blood pressure is generally expressed by two numbers, as 120/80, the first number representing the systolic and the second the diastolic pressure. The numbers represent millimeters of mercury (mm). Normal range of blood pressure are 100 to 140 mm systolic pressure and 60 to 90 mm diastolic pressure (Brest and Moyer, 1977 and Lifestyle Plus Center, 1985).

Research indicates that following conditioning, through aerobic exercise training, blood pressure is lower at an absolute work load than it was before conditioning. (Matthews, 1976). Four recent studies have used blood pressure as a physiological data gathering instrument to analyze the effectiveness of wellness programs: Blair (1984) in his study of a 10 week wellness program; Garber (1984) tested 19 subjects on resting blood pressure measurements before and after a 7 week aerobic exercise program; Prothro (1983) in her investigation of a holistic

wellness program and the intervention's effect on a delinquent female population; and by researchers at the University of San Francisco's Human Performance Laboratory (Editors of Executive Fitness Newsletter, 1985), who divided college-student volunteers into two groups to study the effects of a 14 week exercise program.

Resting blood pressure readings were employed as an indication of cardiovascular fitness. These scores were important due to the fact that an untrained heart is more susceptible to abnormally high blood pressure readings. The heart must work much harder than the heart of an individual whose reading falls within the normal range (Devries, 1974). Higher blood pressure readings cut life expectancy according to data gathered by life insurance companies:

"A 35 year-old man with an arterial blood pressure reading of 120/80 should have a normal life span. If the reading goes up to 130/90, he will live four years less. At 140/90, nine years are lost. And he will live to only 60 if his pressure goes to 150/100" (Snider, 1983).

Blood pressure measurements and recordings were taken by a nurse. Each participant sat quietly for five minutes before measurement. All measurements were done by the same nurse who used a sphygmomanometer and stethoscope on each participant's left arm. Blood pressure was selected due to the review of literature, use in similar studies, and due to the simplicity of measurement.

Resting Heart Rate

Heart rate is defined as the number of heart beats per minute. Training (exercise or aerobics) has a very pronounced effect on heart rate (Matthews, 1976). The average heart rate is seventy-eight beats per minute (Devries, 1974). Highly trained athletes of either sex may have a resting heart rate of 40 beats per minute. An untrained heart may beat 90 times a minute. "A slow resting heart rate is characteristic of a trained individual" (Matthew, 1976). Heart rate was used along with blood pressure in Prothro's (1984) study of a delinquent female population. Oakland (1982) used it in his study of public school teachers and Garber (1984) also measured each participant's heart rate. Heart rate for this study was measured and recorded by a nurse. Each participant sat quietly for five minutes before measurement. The same nurse and same instrument was used for each measurement.

Skin Fold Calibrations

Using calipers to measure subcutaneous fat at several points on the body, an estimate of total body fat can be made. Some persons may not be "overweight" based on their scale weight but may be overly fat (Cooper, 1968). An optimal ratio of fat to lean mass is an indication of fitness (GEICO, no date). The best way to decrease the percentage of body fat is through a combination of diet and exercise.

Becky Walton, Director, Lifestyle Plus Center, Chesapeake General Hospital and an independent tester, measured each participant pre, post and posttest II for skin calibration scores. Ms. Walton used the same calibration tool and identical procedure for each measurement. According to research from the American Association of Health, Physical Education, Recreation, and Dance (1984), "body fatness can be estimated within 3 to 4% fat from a set of skinfolds as measured by experts in adult samples. See Appendix H for procedures and norms.

Data Collection Procedure

The investigator sought approval to conduct this research study through the appropriate channels within the Chesapeake Public School System. Liaison with the Health and Physical Education supervisors at the Virginia State Department of Education was also established.

The time frame for the study was planned for the 1985-1986 school term. Due to the many complications with opening of school in August, the investigator decided the end of September would provide a more conducive atmosphere in which to begin the experiment. From September, 1985 through March, 1986, the experiment was in progress. The procedural time line is diagramed in Figure 9.

Faculty and staff members were briefed on the study during teacher and staff pre-school inservice in August,

1985. Volunteers had the opportunity to select the time frame that would be most appropriate for them to be involved in a twelve week wellness program. All instrumentation pretests were conducted in September, 1985 by an independent agent (Joy Walton, Western Tidewater AHEC). The experimental group began the wellness program Tuesday, September 23, 1985. Every Tuesday and Thursday a 40-45 minute exercise session was administered by an AEROBEX fitness instructor from Chesapeake General Hospital's Lifestyle Plus Center. Wellness seminars were presented by guest lecturers who are experts in their chosen field.

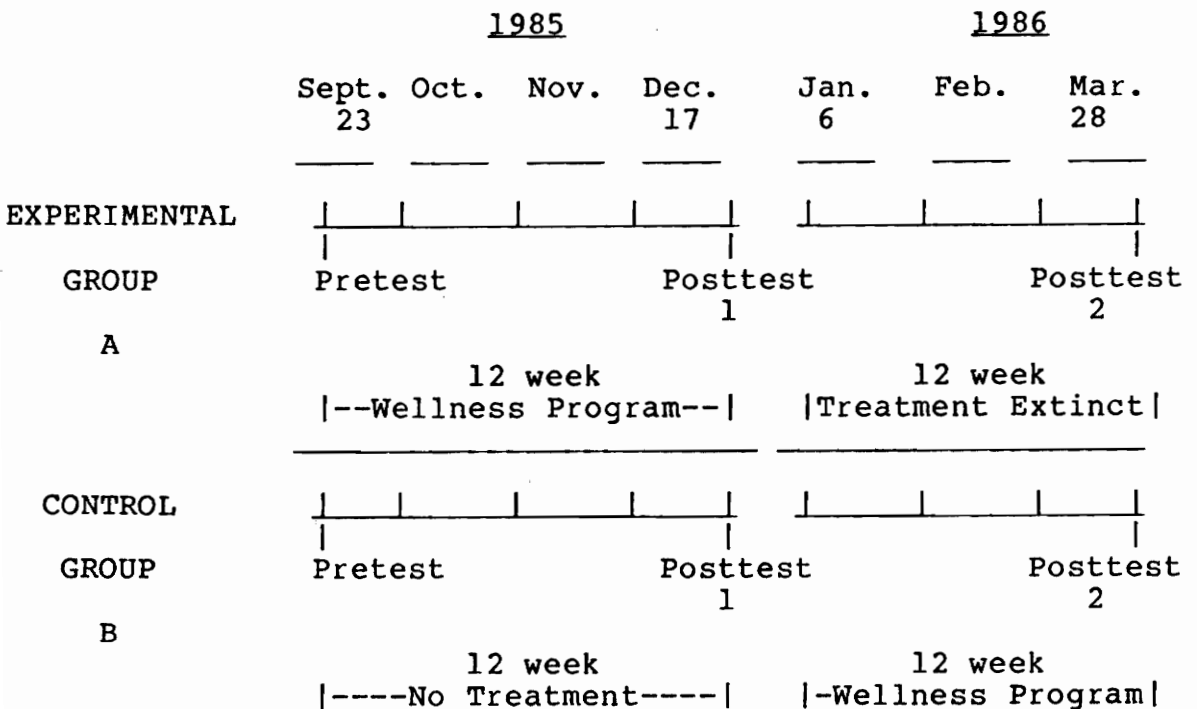


FIGURE 9

PROCEDURAL TIME LINE FOR THE SCHOOL WORKSITE WELLNESS STUDY

These seminars lasted from 40 to 50 minutes each. The control group did not receive any treatment modality. Following the last wellness seminar on December 13, 1985, both groups were posttested on all four dependent variables by the independent agent, Joy Walton.

On January 6, 1986, the wellness program was administered to the control group. Treatment was extinct for the experimental group during this second run of the intervention. Following the last wellness seminar on March 28, 1986, both groups were posttested on all four measurement instruments by an independent agent (Joy Walton). The data was tabulated and analyzed during the months of March and April, 1986.

Statistical Treatment of the Data

The statistics that were applied to the three research questions provided the basis for an analysis of the data.

Research Question #1

The effect of the twelve week wellness program on physical and mental well-being was determined by comparing pre and posttest means using a t-test for independent groups. The alpha was set at the .05 level. Each dependent variable was exposed to a t-test for independent groups. This test identified if a difference existed and if that difference was statistically significant.

Research Question #2

The effect of the twelve week wellness program on the control group following the initial twelve week program with the experimental group was determined by comparing pre and posttest means using a t-test for independent groups. The alpha was set at the .05 level. Each dependent variable was exposed to a t-test for independent groups. This test identified if a difference exists and if that difference was statistically significant.

Research Question #3

The effects of treatment delayed, the effects after three months following extinction of the twelve week wellness program was determined by assessing the Wellness Activities Inventory (Appendix A). This inventory assessed the types of wellness activities the initial experimental group were currently engaged in three months after they stopped the treatment intervention. Frequency counts and cross tabulation was utilized to assess differences. A percentage of those participants still active in wellness activities and the percentage of those activities compared with the total treatment program were calculated and compared.

Supporting Data

In addition to the quantitative assessment of data, qualitative methods of data collection were utilized to validate the results of the self-reported surveys on well-being, stress, and job satisfaction; and to

support analysis and conclusions. A twelve week journal (activity log) was required of each participant in order to determine treatment effects. Unexpected results could thus better be explained if weekly routines, eating habits, and stressful events were logged in this written journal. In addition, attendance charts were kept, feedback forms (Appendix I) were collected from each seminar and aerobics presenter, and a comprehensive daily log was kept on school and wellness activities by the researcher. This information was used to identify any unexpected activities that effected the results.

Delimitations

1. Participant faculty and staff members were accepted as subjects regardless of age and race. These identifiers were taken into consideration in the data analysis.
2. The location of this school is in a suburban, average - to above average residential neighborhood.
3. The study population was composed of all females and three males.

Limitations

1. The school in which this study was conducted is an elementary school in the Washington Borough of Chesapeake, Virginia. The pupil population is 912 students

and the faculty and staff number 71. Inference to schools differing in size and location is limited.

2. Generalization of the results of this study to similar professionals and staff members in other work settings is limited. This would include the faculty and staff members of secondary schools, colleges and universities, and private educational institutions.

3. Faculty and staff members at Georgetown Elementary have varying years of teaching experience and diverse lifestyles. Some participants were also involved in varying degrees with different wellness activities. These activities were identified on the activity log report and the Wellness Activities Inventory.

4. All faculty and staff members at Georgetown Elementary were invited to participate in this study. Since participation was optional, some bias in the population may be present.

Summary

Chapter III outlined the development and rationale for the methods that were used to design, collect, and analyze relevant data needed to answer the questions posed by this research investigation.

A Non-equivalent Control Group Pretest-Posttest Design was developed because the population was composed of volunteers based on their availability for participation.

Participants underwent a twelve week wellness program that involved a weekly exercise component, a weekly seminar session, and an activity log. The experiment began on September 23 of 1985 and continued through March 28, 1986. The study incorporated the use of four instruments to assess mental and physical well-being: General Well-Being Schedule (GWBS); Trait Anxiety Subscale of the State Trait Anxiety Inventory (STAI); Brayfield and Rothe Job Satisfaction Index; Physiological Data (blood pressure, heart rate, and skin fold calibrations). Data was tabulated and statistically formulated by using a t-test to show if the differences between the groups were significant. Limitations and assumptions gave direction as to the study's generalization. Specific procedural steps and population selection steps will be outlined in Chapter IV.

The results of applying the methodology outlined in this chapter to the research design, provides a basis for scientific inquiry into the problem identified in Chapter I and reviewed in Chapter II.

CHAPTER IV
ANALYSIS AND DISCUSSION OF DATA

Introduction

Chapter IV will present detailed findings of this research investigation based on an analysis of data collected from the population.

The purpose of this study was to assess the effects of a structured wellness program on the physical and mental well-being of public school faculty and staff members. The treatment intervention was a twelve week, four component wellness program. The dependent variable measures included the General Well-Being Schedule (GWBS), the Trait Anxiety Subscale of the State-Trait Anxiety Inventory (STAI), the Brayfield and Rothe Job Satisfaction Index, resting blood pressure, resting heart rate, and skinfold calibrations.

The first information presented in this chapter is an overview of the experimental procedures carried out to collect the data. Specific analysis of the population will include: selection; demographic breakdown; assessment of pre-existing differences and pre-existing health related lifestyles. This section will also outline procedures for reporting group attendance during treatment.

Once the experimental procedures have been identified, the findings will be reported as they address each research question. Following a display and interpretation of

statistical data, a follow-up survey will be addressed, and a brief summary of the results presented.

Experimental Procedures

This section will identify data collection procedures, and provide specific details in regards to population: selection; demographics; and pre-treatment characteristics of the sample groups. An explanation of the procedures for reporting attendance during treatment sessions will also be presented.

Differential treatment effects in this study were controlled by using an independent (outside the Chesapeake Public School System) agent. The agent selected was Joy Walton, Health Education Coordinator of Western Tidewater Area Health Education Center (AHEC), located in Chesapeake, Virginia. Ms. Walton is not affiliated with Georgetown Elementary School, its faculty or staff, the city public school system, or the researcher conducting this investigation. All treatment interventions were arranged and transmitted with her direction. Ms. Walton was also the independent tester. She carried out the assessment schedule and arranged for the data to be compiled through the Tidewater AHEC computerized (SPSS) program evaluation office located at Eastern Virginia Medical School, Norfolk, Virginia. Data was also tabulated (SPSS) through the

educational research office of the Chesapeake Public School System, Chesapeake, Virginia.

Population Selection

Fifty-nine (83%) of the available school faculty and staff members at Georgetown Elementary School volunteered to participate in this research investigation. From the volunteers, two groups were created. Group A (31 subjects) served as the experimental group during the first twelve week wellness program and Group B (28 subjects) served as the control group. The control group went on to participate in the second run of the wellness program receiving the treatment.

In reviewing the literature in Chapter II concerning wellness programs, volunteers were used in major studies by Oakland (1981), Mitchell (1983), Clinton (1983), and Collingwood and Blair (1984) to experimentally investigate effectiveness. Borg and Gall (1983) point out that many studies involving human subjects are legally and ethically constrained unless there is informed consent from the subjects. The nature of programs for wellness lifestyle improvement are oriented toward exercise activities. Subjects cannot be forced to participate in these activities, thus volunteers were required in order to conduct this research investigation.

Administering the treatment to the control group was included in the research design to have an "internal

replication of the experiment" (Borg and Gall, 1983).
Replication assists in controlling for the "John Henry Effect" (Borg and Gall, 1983) which is:

"the phenomenon in a research study involving human subjects assigned to experimental and control groups, when those who are identified as 'controls' discover their status and, by that fact, are determined to show the experimental group a thing or two, actually outperforming them" (Issac and Michael, 1983).

The wellness concept is a new arena for improving health and managing stress. With the "newness" of the concept and with all 59 volunteers excited about participating, the control group might have tried to become involved in wellness activities. The John Henry Effect manifests itself when posttest data is analyzed, where outcomes may be due to the "control group's unusual motivation, to be in competition with the experimental group, rather than to treatment effects" (Borg and Gall, 1983). Allowing the control group to undergo the treatment intervention following their role as a control would hopefully constrain the John Henry Effect.

The Participants' availability during the 1985-1986 academic school year determined to which group they would become a member. The entire faculty and staff was presented an overview of wellness and the framework for a health promotion program on August 28, 1985 during a faculty and staff in-service day prior to the students' arrival for the

school year. The purpose of a group orientation meeting was to identify the sample and to control for expectancy effects and motivational variables which might influence the outcome of the treatment. At this meeting the faculty and staff were told that a health promotion program with an exercise component, seminars, and health related activities would be available as part of a study at Georgetown Elementary. Anyone who could be available immediately after the school day each Tuesday, Wednesday, and Thursday, between the hours of 2:15 and 3:15, for a period of twelve weeks could volunteer as a participant. They were told that this program had been approved by the central school administration and that written assessments and physiological measurements would be taken. It was emphasized that only code numbers would be used and that only one person, independent from the school system, would have access to matched names and code numbers. Joy Walton (AHEC) was identified as this individual. The purpose of one person having access to names and scores was specifically explained as a liaison function in the event an item or misunderstanding crucial to the outcome of the study needed to be followed up. Also, in the event a participant lost their code number or coded the wrong number, Ms. Walton could make a correction. It was strongly emphasized that the building principal (researcher) would not have access to code

numbers. The list of names and code numbers were destroyed at the conclusion of the study by Ms. Walton.

At the pre-school meeting, the faculty and staff, who wanted to volunteer, were given two time frames to choose from. They were told the first run of the wellness program would begin on September 23 and end on December 17, 1985. The second would begin on January 6 and run through March 28, 1986. By nature, teachers' schedules immediately after the school day are routinely filled with meetings, in-services, instructional planning, grading of papers, and a variety of other educationally oriented activities. Staff members are loaded with work duty assignments that are scheduled at the day's end when students have left the building. The researcher designed a program that would necessitate a rearrangement of work schedules immediately after the students were dismissed (2:00 p.m.) if staff and faculty members chose to participate. This conflict, as compared to reassembling in the evening, was viewed as more manageable in terms of time and availability. It would be impossible to generate enough participants to conduct the study if faculty and staff members had to return in the evening for treatment sessions. Planning to implement the wellness program immediately after students left the building was also done to control for experimental mortality -- dropouts (Borg and Gall, 1983). It was understood that at given times scheduling

conflicts would arise causing participants to miss sessions in the program.

The meeting ended with a sign up roster for voluntary participation in either Group A or Group B. The entire staff was told that their name as a group member would be evident, but that no individual assessment scores or data would be available by participant name.

In order to assign a code number, each participant randomly drew one envelope from a group of 100 sealed envelopes. Each envelope contained a code number (a number between 100 and 200) written twice and an empty envelope. As instructed by Joy Walton, each volunteer was to keep one of the copies of their code number for reference, place their name on the other copy of their code number, put it in the envelope, and seal it. Each participant was then to hand their sealed envelope to Joy Walton.

The last activity to take place at this meeting was to give each participant a consent form (Appendix J). Statements included on this form related to an agreement to participate in the study with the understanding that no individual scores or data was to be released to anyone.

The method chosen to select the population for this study was the most appropriate in view of the limitations on resources available to the researcher. Treatment activities with exercise components are difficult to assign to a group

that is randomly chosen because they may not choose to participate. Any results from this study must be scrutinized in regards to generalization. Findings that are formulated are basically applicable to the group studied and may not apply to or describe other individuals or groups. It is felt that findings from this study can be useful for a variety of purposes and meaningful inferences in regard to information presented in Chapter II.

Demographic Comparison of the Study Population

Faculty and staff members from one large suburban elementary school volunteered for participation in this research investigation. The demographic characteristics for each group are presented in Table 1.

When the total population of 59 participants were surveyed, the following descriptive characteristics were compared between the participants in Group 1 and Group 2:

1. There was a close similarity in percentage of females between Group 1 (94%) and Group 2 (100%).
2. There was a similarity in percentage of caucasian between Group 1 (71%) and Group 2 (64%), and blacks between Group 1 (26%) and Group 2 (25%).
3. There was similarity in all age groups (21-25, 26-30, and 41-50) except for age groups: 31-40 and 51-older. Forty-two percent of Group 1 participants were between the ages of 31-40 as compared to 29% in

TABLE 1

COMPARISON OF THE DEMOGRAPHIC CHARACTERISTICS
BETWEEN TREATMENT AND CONTROL GROUPS

	Group 1	Percentage within the Group	Group 2	Percentage within the Group
Gender				
Male	2	06	0	0
Female	29	94	28	100
Ethnicity				
Caucasian	22	71	18	64
Black	8	26	7	25
Other	1	03	0	0
Age				
21-25	3	10	2	07
26-30	4	13	3	11
31-40	13	42	8	29
41-50	6	19	3	11
51 or older	6	19	10	36
Position at the school				
Certified teacher	25	81	14	50
Classified employee	6	19	9	32
Other	0	0	2	7
Experience				
Less than 1 year	0	0	0	0
1-2 years	4	13	2	7
3-5 years	5	16	7	25
6-10 years	6	19	2	7
More than 10 years	16	52	14	50
Current grade level (teachers only)				
Kindergarten	3	10	1	4
First	2	6	4	14
Second	5	16	5	18
Third	6	19	3	11
Fourth	8	26	0	0
Totals	31	100	28	100

Group 2. For the age bracket 51-older, there were 19% in Group 1 and 36% in Group 2.

4. Less similarity was found between Group 1 (81%) and Group 2 (50%), in percentage of teachers as compared to the percentage of classified employees, Group 1 (19%) and Group 2 (32%).

5. Similarity between Group 1 (52%) as compared to Group 2 (50%) was observed for job experience in the over ten years bracket. Less similarity was found in the following comparisons of job experience: a. 1-2 years - Group 1 (13%) ... Group 2 (7%); b. 3-5 years - Group 1 (16%) ... Group 2 (25%); c. 6-10 years- Group 1 (19%) ... Group 2 (7%).

6. The only similarity between groups on current grade level taught (teachers only) was found on the second grade, Group 1 (16%) as compared to Group 2 (18%). Less similarity was found in: a. Kindergarten - Group 1 (10%) ... Group 2 (4%); b. First Grade - Group 1 (14%) ... Group 2 (7%); and c. Third Grade - Group 1 (19%) ... Group 2 (11%). No similarity was found between Group 1 (26%) and Group 2 (0%) of teachers on the fourth grade level.

Pre-treatment Characteristics of the Groups

To control for pre-existing differences between Group A and Group B, the Work Relationship Survey (Appendix B) and the Wellness Activities Inventory (Appendix C) were administered.

The Work Relationship Survey was designed to measure factors directly associated with in-house working relationships. It assists in distinguishing attitudes about working relationships between the participant and: school administrators; students, parents; teachers; personal work habits; and professional or work affiliations. This self-reporting instrument also gave an indication of each participant's understanding of the wellness concept.

The questions for this instrument were designed and compared with measurement instruments and writings found in the following sources: How To Measure Attitudes (Henderson, Morris, and Fritz Gibbon, 1978); Measures of Social Psychological Attitudes (Robinson and Sharer, 1973); Looking In: Exploring One's Personal Health Values (Read, 1977); Understanding Psychology (1974); and "Burnout Among Elementary and Secondary Special Education Teachers in Self-Contained and Resource Classrooms" (Master's Thesis, Old Dominion University, 1982). The instrument was considered appropriate for evaluating work relationship attitudes of the faculty and staff.

The Work Relationship Survey was field tested at an elementary school of similar size and student population to obtain a coefficient of stability (Borg and Gall, 1983). This test of reliability gave an indication of the stability of the instrument over time. The survey was given to 48 faculty and staff members and followed up three

weeks later with a retest. Twenty of the original faculty and staff members completed the survey as a retest. The total score reliability was computed at 0.86. The personal concept of wellness subscale was computed at 0.83. These high reliability results indicate that substantial confidence in the quality of the instrument is justified.

The Work Relationship Survey was administered to both groups prior to the pre-test. Mean scores for each subscale and for the total instrument were compared using a t-test for independent groups. The alpha was set at the 0.05 level. The results are presented in Table 2.

No significant differences were found between the groups on work relationship comparisons concerning: administrators ($t=0.92, p<0.36$); students ($t=1.05, p<0.30$); parents ($t=1.80, p<0.08$); or teachers ($t=0.98, p<0.33$). Significant pre-existing differences were found on how the participants felt about their personal work habits ($t=2.09, p>0.04$), and their professional or work affiliations ($t=2.07, p>0.04$). The total score was found not to be significantly different ($t=1.80, p>0.08$).

In reviewing the demographic differences between the two groups it was felt that the eight teachers from the fourth grade in Group 1 may have biased the pre-existing differences found in the Work Relationship Survey. Group 2 had no representation from the fourth grade level in their group.

TABLE 2

PRE-TREATMENT CHARACTERISTICS OF THE POPULATION GROUPS
USING THE WORK RELATIONSHIP SURVEY

Work Relationship Variable	N	Mean	Standard Deviation	t	Degrees of Freedom	p
Administrators				0.92	57	0.36
Group 1	31	2.19	0.58			
Group 2	28	2.04	0.74			
Students				1.05	57	0.30
Group 1	31	2.02	0.52			
Group 2	28	1.86	0.62			
Parents				1.80	57	0.08
Group 1	31	2.34	0.51			
Group 2	28	2.05	0.70			
Teachers				0.98	57	0.33
Group 1	31	2.47	0.40			
Group 2	28	2.31	0.79			
Personal Work Habits				2.09	57	0.04*
Group 1	31	2.63	0.44			
Group 2	28	2.28	0.82			
Professional or Work Affiliations				2.07	57	0.04*
Group 1	31	2.39	0.51			
Group 2	28	2.06	0.71			
Total				1.80	57	0.08
Group 1	31	14.04	2.10			
Group 2	28	12.60	3.86			

* Significant at .05 level

To control for this occurrence, the mean scores for the eight teachers in Group 1 were compared to the means for the rest of the participants in Group 1 on all six subscales of the Work Relationship Survey. A t-test for independent groups was used to compare mean scores. The alpha was set at the 0.05 level. Results are found in Table 3.

A significant difference between the 4th grade teachers in Group 1 and the remainder of participants in Group 1 was found only in the parents subscale ($t = 2.41, p > 0.02$). No significant differences were found for: administrators ($t = 0.26, p < 0.80$); students ($t = -0.54, p < 0.59$); teachers ($t = 1.66, p < 0.11$); personal work habits ($t = 1.59, p < 0.12$); and professional or work affiliations ($t = -1.27, p < 0.21$). There was no significant differences found for the total score ($t = 0.92, p < 0.36$). These results indicate that the 4th grade teachers did not bias Group 1 results for the Work Relationship Survey.

Included with the six subscales found in the Work Relationship Survey was a separate scale that assessed participant's understanding of the wellness concept. This subscale was not included in the total score because it did not address attitudes about working relationships.

The mean score comparisons prior to the pretest for the wellness attitude subscale can be found in Table 4.

TABLE 3

COMPARISON OF MEAN SCORES FOR EIGHT FOURTH GRADE TEACHERS
IN GROUP ONE AS COMPARED WITH REMAINING PARTICIPANTS
IN GROUP ONE FOR THE WORK RELATIONSHIP SURVEY

Work Relationship Variable	N	Mean	Standard Deviation	t	Degrees of Freedom	p
<u>Administrators</u>				0.26	29	0.80
4th Grade Teachers	8	2.14	0.53			
Others in Group 1	23	2.21	0.60			
<u>Students</u>				-0.54	29	0.59
4th Grade Teachers	8	2.11	0.40			
Others in Group 1	23	1.99	0.56			
<u>Parents</u>				-2.41	29	0.02*
4th Grade Teachers	8	2.71	0.28			
Others in Group 1	23	2.23	0.51			
<u>Teachers</u>				1.66	29	0.11
4th Grade Teachers	8	2.26	0.47			
Others in Group 1	23	2.53	0.36			
<u>Personal Work Habits</u>				-1.59	29	0.12
4th Grade Teachers	8	2.86	0.19			
Others in Group 1	23	2.57	0.47			
<u>Professional or Work Affiliations</u>				-1.27	29	0.21
4th Grade Teachers	8	2.60	0.43			
Others in Group 1	23	2.33	0.52			
<u>Total</u>				-0.92	29	0.36
4th Grade Teachers	8	14.69	1.31			
Others in Group 1	23	13.85	2.27			

* Significant at .05 level

TABLE 4
 PRE-TREATMENT CHARACTERISTICS OF THE
 POPULATION GROUPS ON THE WELLNESS ATTITUDE
 SUBSCALE OF THE WORK RELATIONSHIP SURVEY

	N	Mean	Standard Deviation	t	Degrees of Freedom	p
Wellness Attitudes				0.26	57	0.79
Group 1	31	10.35	2.30			
Group 2	28	10.15	3.75			

There were no significant differences between Group 1 and Group 2 ($t= 0.26$, $p< 0.79$).

The results of comparing the mean scores for the eight fourth grade teachers as compared to scores for the remaining participants in Group 1 can be found in Table 5. The results indicate no significant differences ($t= 0.46$, $p< 0.65$), thus no bias to the Group 1's wellness attitudes by the fourth grade teachers.

The Wellness Activities Inventory (Appendix D) is not an attitude assessment instrument. It is made up of two separate sections. The first section functions to give an assessment of present involvement in wellness activities and to distinguish which particular activity or activities each group collectively were pursuing before treatment. Examples of activities included were: fitness club membership; weight-training; jogging; volleyball; aerobics; nutrition program or diet; and stress management program. This part of the inventory was scored by simple tabulation.

The second part of the inventory (Lifestyles) gave an assessment of the groups overall present lifestyle in areas where they had an ability to control detrimental affects to their health. Areas identified were: alcohol abuse; tobacco use; blood pressure; weight/body fat; physical fitness; stress/anxiety level; car safety; relationships; rest/sleep; and life satisfaction. This inventory was taken from the

TABLE 5

COMPARISON OF MEAN SCORES FOR EIGHT
FOURTH GRADE TEACHERS IN GROUP ONE AS COMPARED
WITH REMAINING PARTICIPANTS IN GROUP ONE FOR THE
WELLNESS SUB-SCALE OF THE WORK RELATIONSHIP SURVEY

	N	Mean	Standard Deviation	t	Degrees of Freedom	p
Wellness Attitudes				0.46	29	0.651
Group 1	8	10.00	2.58			
Group 2	23	10.46	2.27			

sample wellness inventories section of Wellness At The School Worksite Manual (Health Insurance Association of America and the American Institute of Life Insurance, 1985). According to the manual this assessment was developed by John Cavendish, Ed. D., Corporate Extension Service, West Virginia University. A total score is tabulated and interpreted according to the scale found in Appendix D. An independent t-test was used to assess any significant differences between groups prior to treatment.

The Wellness Activities Inventory was administered to both groups prior to the pre-test. The results from the section on present involvement in wellness activities can be found in Table 6, and lifestyle assessment in Table 7.

The activities of the control group compared very closely (within 10%) to the treatment group for: health or fitness club membership; nutritional program; stress management program; jogging or similar CV (cardiovascular) program; calisthenics or exercise; weight training; organized sports; and structured wellness program. Aerobics is 12.54 percentage points apart and weight loss program is 11 percentage points apart. This section of the Wellness Activities Inventory depicts Group 1 as being similar to Group 2 in regards to present involvement in wellness type activities before the treatment intervention.

TABLE 6

NUMBER OF PARTICIPANTS ENGAGED IN WELLNESS ACTIVITIES
PRIOR TO TREATMENT INTERVENTION

Activity	Group 1	(%)	Group 2	(%)
Health or Fitness Club Member	5	16	3	11
Nutritional Program	2	7	0	0
Stress Management Program	1	0.03	0	0
Aerobics	4	13	1	0.36
Jogging or similar CV program	8	27	10	36
Calisthenics or exercise	5	16	4	14
Weight training	3	1	1	0.36
Organized sports	3	1	2	7
Structured wellness program	1	0.03	0	0
Weight loss program	7	23	4	14
Other (write ins)	"weekly massage" "I have designed my own exercise program of 30 mins. 5 days per week"		"play golf twice a week"	

TABLE 7
 PRE-TREATMENT GROUP COMPARISONS OF LIFESTYLES
 AS ASSESSED BY THE LIFESTYLE INVENTORY SECTION OF
 THE WELLNESS ACTIVITIES INVENTORY

	N	Mean	Standard Deviation	t	Degrees of Freedom	p
LIFESTYLES				1.22	57	0.23
Group 1	31	22.94	11.05			
Group 2	28	19.21	12.44			

The second section of the Wellness Activities Inventory gave an assessment of each groups' present lifestyles in specific areas where they had an ability to control detrimental affects to their health. Total scores were tabulated and the means compared for significance by an independent t-test. The alpha was set at 0.05. The higher the total mean score, the healthier the group was assessed to be:

"A score of 40-50	Healthier than average lifestyles
A score of 25-39	Average lifestyles
A score of 0-24	Below average: need for improvement"

(Health Insurance Association of America and the American Council of Life Insurance, 1985).

The lifestyles section was administered pretest to Group 1 and Group 2. The results of the statistical treatment of data for this section of the Wellness Activities Inventory can be found in Table 7. No statistically significant differences were found ($t= 1.22, p < 0.23$).

Attendance Reporting Procedures

This section will outline the procedures for reporting participant attendance at the aerobex sessions and the seminar sessions.

At each aerobex session, participants took their own pulse rate and recorded that rate on an Aerobex Fitness Enterprizes chart. This chart was not left at the school, but brought to each session and taken back by the instructor.

The totals were cross-checked with the dates each individual recorded on their Governor's Physical Fitness activity card.

A record of Group 1's attendance can be found in Table 8. A total of 22 aerobex sessions were offered during the first twelve week wellness program, September 23 - December 17, 1986. Multiplied by the 31 participants, a total of 682 attendance days were possible. Actual attendance was tabulated to be 457 days or 67 percent. Participants missed 225 attendance days.

Group 2's attendance record is catalogued in Table 8. With 28 participants, Group 2 had a total of 616 possible attendance days. Group members missed 270 attendance days for a total of 346 actual days of aerobex attendance ... a 56% rating.

Seminar attendance was documented by a participant sign-in roster. A pre-designated individual was responsible for recording by code number the attendance of group members for each seminar session. Table 8 displays the record for seminar attendance.

Group 1 had 186 possible seminar attendance days. Actual attendance was 147 days, with missed days totaling 39 ... a 79% rate. Group 2 had 168 possible seminar attendance days. Actual attendance was 127 days with 41 missed days ... a 76% rate.

TABLE 8
ATTENDANCE RECORD FOR PARTICIPATION
IN BOTH TWELVE WEEK WELLNESS PROGRAM RUNS

	First Wellness Program Run With Participants From Group 1 (Sept. 23, - Dec. 17, 1985)	Second Wellness Program Run With Participants From Group 2 (Jan. 6, - April 1, 1986)
Aerobex		
Aerobex Sessions	22	22
Number of Participants	31	28
Total Attendance Days Possible (sessions x participants)	682	616
Actual Attendance Days	457	346
Missed Attendance Days	225	270
ATTENDANCE PERCENTAGE	<u>67%</u>	<u>56%</u>
Seminars		
Seminar Sessions	6	6
Number of Participants	31	28
Total Attendance Days Possible (sessions x participants)	186	168
Actual Attendance Days	147	127
Missed Attendance Days	39	41
ATTENDANCE PERCENTAGE	<u>79%</u>	<u>76%</u>

Reported Findings for Each Research Question

The results of this study will be presented for each of the three research questions:

Research Question 1

A twelve week structured wellness program directed at a change in lifestyle can produce significant changes in mental well-being (as measured by the General Well-Being Schedule; the Trait Anxiety Subscale of the State-Trait Anxiety Inventory [stress self-evaluation], and the Brayfield and Rothe Job Satisfaction Index) and physical well-being (as measured by resting heart rate, resting blood pressure, and skin-fold calibrations) of elementary school faculty, staff, and support personnel. Each dependent variable was exposed to a t-test for independent groups. The alpha was set at 0.05.

Pretest results from the analysis of the dependent measures for mental well-being are presented in Table 9. No statistically significant differences were found between the mean scores for general well-being ($t = -1.14$, $p < 0.25$), stress self evaluation ($t = -0.85$, $p < 0.40$), or job satisfaction ($t = 0.98$, $p < 0.33$).

The posttest results for mental well-being are presented in Table 10. No statistically significant differences were found between mean scores for general well-being ($t = 1.27$, $p < 0.21$), stress self-evaluation ($t = 0.05$, $p < 0.96$), or job satisfaction ($t = 0.55$, $p < 0.58$).

TABLE 9

T-TEST COMPARISON BETWEEN GROUPS FOR THE GENERAL WELL-BEING,
 SELF-EVALUATION, AND JOB QUESTIONNAIRE RATING INSTRUMENTS
 PRE-TEST (SEPTEMBER, 1985)

	N	Mean	Standard Deviation	t	Degrees of Freedom	p
General Well-Being				-1.14	54	0.25
Group 1	31	73.03	5.31			
Group 2	25	74.76	6.02			
Self-Evaluation				-0.85	54	0.40
Group 1	30	2.28	0.23			
Group 2	26	2.33	0.15			
Job Questionnaire				0.98	52	0.33
Group 1	31	3.19	0.23			
Group 2	23	3.13	0.23			

TABLE 10

T-TEST COMPARISON BETWEEN GROUPS FOR THE GENERAL WELL-BEING,
 SELF-EVALUATION, AND JOB QUESTIONNAIRE RATING INSTRUMENTS
 POST-TEST (DECEMBER, 1985)

	N	Mean	Standard Deviation	t	Degrees of Freedom	p
General Well-Being				-1.27	47	0.21
Group 1	26	73.15	6.16			
Group 2	23	75.35	5.89			
Self-Evaluation				0.05	45	0.96
Group 1	25	2.26	0.24			
Group 2	22	2.26	0.20			
Job Questionnaire				0.55	43	0.58
Group 1	24	3.19	0.27			
Group 2	21	3.15	0.24			

The research question in relation to mental well-being measures is not supported by the posttest results. There were no significant differences in Group 1's mean mental well being scores as compared to the control group.

Pretest results of the dependent measures for physiological well-being are displayed in Table 11. No significant differences were found between mean scores for resting systolic blood pressure ($t = -1.39, p < 0.17$), resting diastolic blood pressure ($t = 0.78, p < 0.94$), or skinfold calibrations ($t = 0.18, p < 0.86$).

The posttest results for physiological well-being are found in Table 12. This data indicates a significant difference between mean scores for resting systolic blood pressure ($t = -2.01, p > 0.05$) and resting diastolic blood pressure ($t = -2.01, p > 0.05$). No significant differences were found between mean scores for resting heart rate ($t = -0.08, p < 0.94$) or skinfold calibrations ($t = 0.18, p < 0.86$).

The physiological well-being segment of research question number one is not supported by posttest results from two of the physiological measures (resting heart rate and skinfold calibrations) but for resting systolic and diastolic blood pressure measurements, a significant difference exists. Therefore, this portion of the research question is partially supported.

A review of the supporting data (daily log, feedback

TABLE 11

T-TEST COMPARISON BETWEEN GROUPS FOR RESTING
BLOOD PRESSURE, RESTING HEART RATE,
AND SKINFOLD CALIBRATION MEASUREMENTS
PRETEST (SEPTEMBER, 1985)

	N	Mean	Standard Deviation	t	Degrees of Freedom	p
Resting Systolic Blood Pressure				-1.39	49	0.17
Group 1	27	111.63	11.77			
Group 2	24	117.75	19.16			
Resting Diastolic Blood Pressure				-0.78	49	0.44
Group 1	27	73.04	8.07			
Group 2	24	75.08	10.52			
Resting Heart Rate				-0.08	49	0.94
Group 1	27	75.19	10.58			
Group 2	24	75.42	9.57			
Skinfold Calibration				0.18	44	0.86
Group 1	25	29.48	7.14			
Group 2	21	29.13	5.86			

TABLE 12

T-TEST COMPARISON BETWEEN GROUPS FOR RESTING
BLOOD PRESSURE, RESTING HEART RATE, AND
SKINFOLD CALIBRATION MEASUREMENTS
POSTTEST (DECEMBER 1985)

	N	Mean	Standard Deviation	t	Degrees of Freedom	p
Resting Systolic Blood Pressure				-2.01	49	0.05*
Group 1	27	109.07	10.34			
Group 2	24	117.33	18.30			
Resting Diastolic Blood Pressure				-2.01	49	0.05*
Group 1	27	70.59	7.27			
Group 2	24	74.79	7.65			
Resting Heart Rate				-0.78	49	0.44
Group 1	27	73.07	9.40			
Group 2	24	75.21	10.02			
Skinfold Calibration				-1.15	44	0.26
Group 1	25	27.36	7.27			
Group 2	21	29.66	6.05			

* Statistically significant at .05 level

forms, attendance procedures, pre-existing differences, and literature review) was applied to the results found for the first research question.

Lack of statistically significant differences could not be attributed to any occurrences documented in the daily log. Relevant entries are reported in Appendix K. These notations were viewed as possible influences on participant behavior in relation to measured outcomes. Although no specific instances stand out as affecting the results, there are notations that support the "John Henry" theory.

As previously described, John Henry Effect is the possible phenomenon occurring in research investigations where the participants are assigned to experimental and control groups. The control identifies their status and performs beyond their usual average, at times out performing the experimental group (Issac and Michael, 1985). Borg and Gall (1983) state that the John Henry Effect "reflects the impact upon the control group in experiments where the experimental group is perceived as competing with the control group."

In this study the control group may be psychologically threatened by a "situation in which they feel they are likely to come out second best" (Borg and Gall, 1983). The competition for better health habits and strategies was possibly a threat to the control group. Not desiring a

second best status or not wanting to pursue "unhealthy lifestyle strategies, the control group became more involved in wellness activities or changed their attitude regarding the wellness concept. The control participants also knew they were being evaluated and possibly wanted to make themselves look good.

Documentation found in the daily log for September 17, 21, 24, October 9, and November 1 (Appendix K) cite occurrences that support and rationale for speculation of the John Henry Effect.

Documentation from Aerobex Feedback Forms or Seminar Feedback Forms (Appendix L) did not identify any incidents or behavior that would have affected the lack of significant results. Any comments reported by the presenters that appeared relevant to the study were recorded in Appendix L.

With a non-randomized design, there always exists the possibility that differences exist between the groups that is not reflected in the pretest. A critical difference could affect how the participants interact with the experimental treatment (Issac and Michael, 1983).

Pre-existing differences in this study were measured in four areas: work relationships, wellness attitudes, wellness activity participation, and wellness lifestyles.

Of the eight measures statistically manipulated for assessing working relationships, only personal work habits and professional or work affiliations were shown to be

significantly different between the groups (see Table 2). This was probably due to the mix of professional (teachers) and classified (staff personnel) individuals who chose to participate. Twenty-five participants in Group 1 were certified teachers and 6 were classified employees as compared to 14 certified teachers, 9 classified, and 2 "other" participants in Group 2 (see Table 1).

There were no statistically significant differences between group mean scores on the Wellness Attitude Subscale (Table 4) or the Lifestyle Inventory (Table 7). Pre-treatment wellness activities of both groups were similar (Table 6).

The only statistically significant difference found for Research Question 1 was resting systolic ($t = -2.01, p > .05$) and resting diastolic ($t = -2.01, p > .05$) blood pressure recordings (Table 12). The experimental group showed lower group mean scores indicating a significant drop in both systolic and diastolic blood pressure. This result is probably due to participation in aerobex exercise sessions. During aerobex exercise, working muscles receive an increased flow of blood as the breathing rate increases. When aerobex activity is done for an extended time period, the heart, lungs, and blood vessels become stronger. This training affect enhances the opportunity for lowering both systolic and diastolic resting blood pressure readings (Aerobex, 1983; Bates, 1984; and Weltman, 1985).

The reported attendance for aerobex sessions was 67% and for wellness seminars 79% (see Table 8). Both percentage scores indicated positive participation levels. Aerobex session attendance could be considered low due to the fact that one third of possible attendance days were missed.

Research Question 2

A twelve week structured wellness program directed at a change in lifestyle will produce similar results if replicated with a difference experimental group of faculty and staff members. The replication group receiving the treatment was the original control group. A second posttest (Posttest II) was administered to the control group and the original experimental group. Each dependent variable was exposed to a t-test for independent groups. The alpha was set at 0.05).

Posttest II results for mental well-being are presented in Table 13. No statistically significant differences were found between the mean scores for general well-being ($t=0.73$, $p<0.47$), stress self-evaluation ($t=-0.74$, $p<0.46$), or job satisfaction ($t=1.69$, $p<0.10$).

The Posttest II results for physiological well-being are presented in Table 14. No significant differences were found between mean scores for resting heart rate ($t=0.40$, $p<0.69$), resting systolic blood pressure ($t=-0.44$, $p<0.66$), resting diastolic blood pressure ($t=0.21$, $p<0.83$), or

TABLE 13

T-TEST COMPARISONS BETWEEN GROUPS FOR THE
GENERAL WELL-BEING, SELF-EVALUATION, AND JOB
QUESTIONNAIRE RATING INSTRUMENTS
POSTTEST II (APRIL 1986)

	N	Mean	Standard Deviation	t	Degrees of Freedom	p
<u>General Well-Being</u>				0.73	48	0.47
Group 1	25	72.40	5.16			
Group 2	25	71.28	5.71			
<u>Self-Evaluation</u>				-0.74	49	0.46
Group 1	25	2.26	0.18			
Group 2	26	2.30	0.20			
<u>Job Questionnaire</u>				1.69	47	0.10
Group 1	25	3.24	0.17			
Group 2	24	3.14	0.22			

TABLE 14

T-TEST COMPARISON BETWEEN GROUPS FOR RESTING HEART RATE, RESTING SYSTOLIC BLOOD PRESSURE, RESTING DIASTOLIC BLOOD PRESSURE, AND SKINFOLD CALIBRATIONS POSTTEST II (APRIL 1986)

	N	Mean	Standard Deviation	t	Degrees of Freedom	p
Resting Heart Rate				0.40	45	0.69
Group 1	25	74.72	8.82			
Group 2	22	73.64	9.77			
Resting Systolic Blood Pressure				-0.44	45	0.66
Group 1	25	112.72	14.49			
Group 2	22	115.09	21.85			
Resting Diastolic Blood Pressure				0.21	45	0.83
Group 1	25	72.56	9.12			
Group 2	22	71.91	11.78			
Skinfold Calibration				0.36	43	0.72
Group 1	24	29.96	8.58			
Group 2	21	29.16	6.26			

skinfold calibrations ($t = 0.36$, $p < 0.72$).

Statistical analysis of the data failed to produce any significant differences in mean scores for either mental or physical well-being.

The statistically significant differences found for mean systolic and diastolic blood pressure recordings in the first research question were not found in the replication with a different experimental group. Without similar statistical significant differences, Research Question 2 can not be supported.

Lack of statistical significance for replication could not be attributed to any incidents documented in the daily log (Appendix K) or in the entries found on the Aerobex Feedback Form or Seminar Feedback Form (Appendix L).

The reported attendance for aerobex sessions was 56% and for wellness seminars, 76%. Percentage scores indicated a lower attendance level than for the first run of the wellness program (aerobex 67% and seminars 79%).

The control group for the first run of the wellness program was employed as the experimental group for the second run. Part of the rationale for lack of results in the first run was attributed to a possible John Henry Effect where it was speculated that the control group became involved in wellness activities. It was also contemplated that this phenomenon affected a change in attitude regarding the concept of wellness. The possibility

of being involved to some degree in wellness activities during the first run, could have effected the results of the control groups Posttest II measures. In addition, Group 1 (experimental group during the first wellness run) could have maintained a sufficient level of wellness involvement to negate any gains obtained by Group II during the second run.

In reality, the control group was actually a pre-experimental group with anticipatory behaviors that possibly affected outcomes in both runs of the wellness program.

Research Question 3

Three months following the extinction of a twelve week structured wellness program, 75% of the participants will continue with 90% of the activities appearing in the wellness program. The Wellness Activities Inventory was assessed by frequency counts and cross tabulation in measuring the activity level of participants in Group 1 approximately twelve weeks after their final treatment session. Results were reported according to the number of participants involved in each wellness activity in relation to the percentage of total participants in the group (Table 15). Fourteen (52%) of the participants in Group 1 were involved in either a structured wellness program or active health club membership three months following treatment extinction.

TABLE 15
 GROUP ONE PARTICIPANTS INVOLVED IN WELLNESS ACTIVITIES
 THREE MONTHS FOLLOWING TREATMENT EXTINCTION
 (APRIL 1986)

<u>Activity</u>	<u>Number of Participants</u>	<u>Percent of Total n</u>
Structured Wellness Program and/or Active Health Club Member	14	52
Aerobic (Aerobex), jazzercise, jogging, biking, swimming, or other cardiovascular program	21	78
Stress Management Program (relaxation, group therapy, etc.)	4	15
Weight loss program (presented in seminar)	12	44
Average Number of Participants	13	47.3

Twenty (78%) of the participants were involved in an aerobic activity; four (15%) in a stress management program; and twelve (44%) in a weight loss program.

The average number of participants were tabulated by dividing the total number of participants for all activities (51) by the total number of activities (4). The resulting figure was 13 participants. This figure was then calculated according to the percentage of total group participation. The results indicated that 47.3 percent of the participants in Group 1 were involved with 100 percent of the activities three months following treatment extinction.

The data indicates partial support for the research question. It also indicates that almost half of the participants did continue, in some form, all the activities presented during the treatment.

Wellness Program Follow-Up Survey

At the conclusion of the study (following Posttest II testing), a brief survey form was administered to five participants from each group. These individuals were selected randomly by drawing their names from a box containing each participant's name in their respected group.

The Wellness Program Follow-Up Survey Form (Appendix M) was designed to provide specific feedback from participants that could possibly help identify why the study lacked significant outcomes. Each participant selected was

interviewed individually by asking them the seven questions contained in the survey instrument.

The results of this endeavor only provided a peripheral synopsis of rationale for lack of significant findings. Most comments praised the program for raising awareness, making them feel better, or providing a convenient setting where they could exercise. Nine of those interviewed were very positive in their responses and felt they changed to some degree. One individual was neutral towards the program and stated her day was really too busy to become intensely involved with the program. All survey participants felt time was always a major problem at the end of the school day. They felt the stress of day long job requirements inhibited their excitement and energy level for aerobics participation immediately after the students' day ended. Two participants interviewed suffered minor injuries while participating in aerobics and one stated she only made half of the sessions.

All were impressed by the seminar presentations and the quality of handout materials, and all but two expressed interest in pursuing some of the recommended activities. The other two felt time restraints would restrict them from seeking further levels of participation.

Overall, the most positive benefit seemed to be a heightened awareness of preventative strategies and the most obvious concern centered around time constraints. A

more in-depth analysis of possible rationale for lack of significant findings is presented in the Speculations section of Chapter V.

Summary of Results

This chapter presented the statistical treatment of data. The t-test for independent groups was used to test differences between control and experimental group means for mental well-being and physiological well-being. The t-test was also used to examine replication. To examine the effects after treatment extinction, frequency counts and cross tabulation procedures were used.

For research question one, the statistical operation applied to the data and results generated failed to support the research question except for a statistically significant difference found in resting systolic and resting diastolic blood pressure measurements. This difference is thought to be attributed to the training effect found in the aerobex component of the treatment.

Research question two was designed to test replication for similar results found in the empirical analysis of Research Question 1. Results indicated that this did not occur. Lack of statistically significant findings for mental and physiological well-being in the first wellness run obstructed the opportunity to replicate results.

Statistically significant differences for resting systolic and diastolic blood pressure measurements were not replicated.

Research question three suggested that 75% of the participants would continue with 90% of the activities that appeared in the wellness program 12 months following treatment extinction. Analysis of the data revealed that 47% of the participants continued with 100% of the activities.

The Wellness Program Follow-Up Survey concluded that participants felt the program was positive and made them more aware of healthy lifestyles, but they felt time constraints caused them the most difficulty as the study progressed.

Chapter V will provide conclusions for this research investigation, speculations generated from analyzing these conclusions, and recommendations for further research.

CHAPTER V

SUMMARY, CONCLUSIONS, SPECULATIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

Introduction

The Wellness Revolution is recognized as a strategy for combating degenerative diseases. Instead of seeking medical care at the onset of illness or disease, individuals choose preventative lifestyle behaviors promoted through an integral system of physical, mental, emotional, and spiritual strategies. As an alternative to high-tech medical diagnosis and treatment, people are bending, twisting, jogging, dieting, managing stress, building self-esteem, among others, in an attempt to enhance their quality of life.

According to the literature review, the astronomical costs of unhealthy lifestyles is well documented. Over \$400 billion is spent each year in the United States to care for the sick and afflicted. Lifestyles account for over 50% of all deaths. Over 10% of the nation's Gross National Product is devoted to medical care. Employee business medical insurance plans are burdened with paying the country's enormous health care bill.

In numerous business enterprises, wellness is viewed as being a panacea for attacking the high cost encumbered due to employee sickness. The wellness concept implies

that risks can be assessed, threats to good health identified, and preventative strategies implemented that will insure investment in employee quality of life. Prevention is the ultimate health care policy, according to wellness experts.

Elements found to be critical to the success of a worksite wellness program have been identified. Major companies in business and industry have taken these constituents and combined them with theoretical constructs identified by experts to develop company health promotion programs. Comprehensive wellness models have ignited expansion and development of even more elaborate health promotion programs.

Trailing at a distance behind business and industry are the far less extensive wellness endeavors found in our nation's public institutions. With meager financial support, if any, public schools are attempting to increase their development of worksite wellness programs. Major concerns are focused on teacher stress and burnout. Absenteeism, lost productivity, and escalating health care costs are also major obstacles facing the education profession. The wellness approach may be an answer for personnel administrators as they quest to combat staff health cost containment. Wellness also could address

impediments to effective teaching by reducing teacher stress levels.

Health promotion strategies consolidate important implications for curriculum development, improvement in teacher health related role-model behavior, and enhancement of staff and student health alike.

A challenge to the success of any worksite wellness program is the motivation of employees. Becoming aware of, and making appropriate changes to improve personal health lifestyles is a difficult task. Leadership and support is mandatory in program implementation. Top level school administrators must become actively involved. Other critical issues relate to program planning, needs assessment commitment, management, and evaluation.

Subjective assessment of worksite wellness programs have been positive and encouraging, but results generated from experimental investigations have fallen short in providing conclusive analysis. Some empirical inquires have contributed significant results. The majority of those that have documented favorable outcomes have had strong financial support to incorporate a variety of health promotion activities. The overall limited number of wellness studies and lack of significant results in some of these studies have hindered generalization and scientific acceptance.

Many studies have proven the effectiveness of specific components of wellness (i.e. stress management, exercise, nutritional programs) on specified outcomes, but only a handful of studies have applied any combination of these activities in an attempt to verify effectiveness.

In an effort to explore structured wellness activities in an analytical setting, this research investigation was developed and tested. This study was undertaken in a single school setting with limitations on resources and financial support.

Summary of the Study

This study incorporated a Nonrandomized Control Group Pretest-Posttest design (Figure 10 ...A-B) to experimentally investigate the effects of a structured wellness program on mental and physiological well-being. Fifty-nine teacher and staff volunteers from a suburban elementary school were divided into two groups according to their availability to become involved in an afternoon twelve week worksite wellness program. Those who chose to participate in the first run of the wellness program (September 23 - December 17, 1986) became the experimental group. Participants who chose the second run (January 6 - March 28, 1986) became the control group.

	Experimental Group (Group 1) A	Control Group (Group 2) B
September, 23	Pretest	Pretest
October	Treatment	No Treatment
November	Treatment	No Treatment
December 17, 1985	Posttest	Posttest

FIGURE 10

NONRANDOMIZED CONTROL-GROUP PRETEST-POSTTEST DESIGN

Both groups were assessed for pre-existing differences by completing a work relationship survey that gave an indication of the participant's work environment relationships with: peers, teachers, parents, students, administrators, job descriptions, and professional expectations. The survey was extended to include attitudes about the wellness concept. Both groups also completed an inventory that gave an indication of their present activity level and their present lifestyle in regards to: use of alcohol and tobacco, blood pressure, body fat, physical fitness, stress, car safety, relationships, and rest or sleep.

Group 1 and Group 2 were then pretested on the following dependent variables: general well-being; stress; job satisfaction; resting blood pressure; resting heart

rate; and skinfold calibrations. Group 1 immediately began a twelve week structured wellness program that included: aerobic exercise twice a week; attendance at six health related seminar sessions; handout material on eighteen various health related topics; incentives (i.e. tee shirts); and participation in the Governor's (Virginia) Physical Fitness Award Program for School Personnel. The control group received no treatment. At the conclusion of the intervention, both groups were posttested on all dependent variables. Data was analyzed statistically using a t-test for independent groups. The Alpha was set at the .05 level.

Following this initial research inquiry, the original research design was expanded (Figure 11 .D) to allow treatment repetition with the control group receiving the same intervention components and format. Following this twelve week session, both groups were posttested on all dependent variable measures and mean scores compared using an independent t-test. The Alpha was set at the .05 level.

A third inquiry addressed the issue of activity level following a twelve week extinction period (Figure 11 ...C). Group 1 received no structured treatment after the first run of the wellness program. It was hypothesized that 75% of the participants would remain involved with 90% of the treatment activities three months following treatment extinction. Group 1 was posttested on April 1 using the

Wellness Activities Inventory. Data was assessed by frequency counts and cross tabulation. An activity level percentage was calculated.

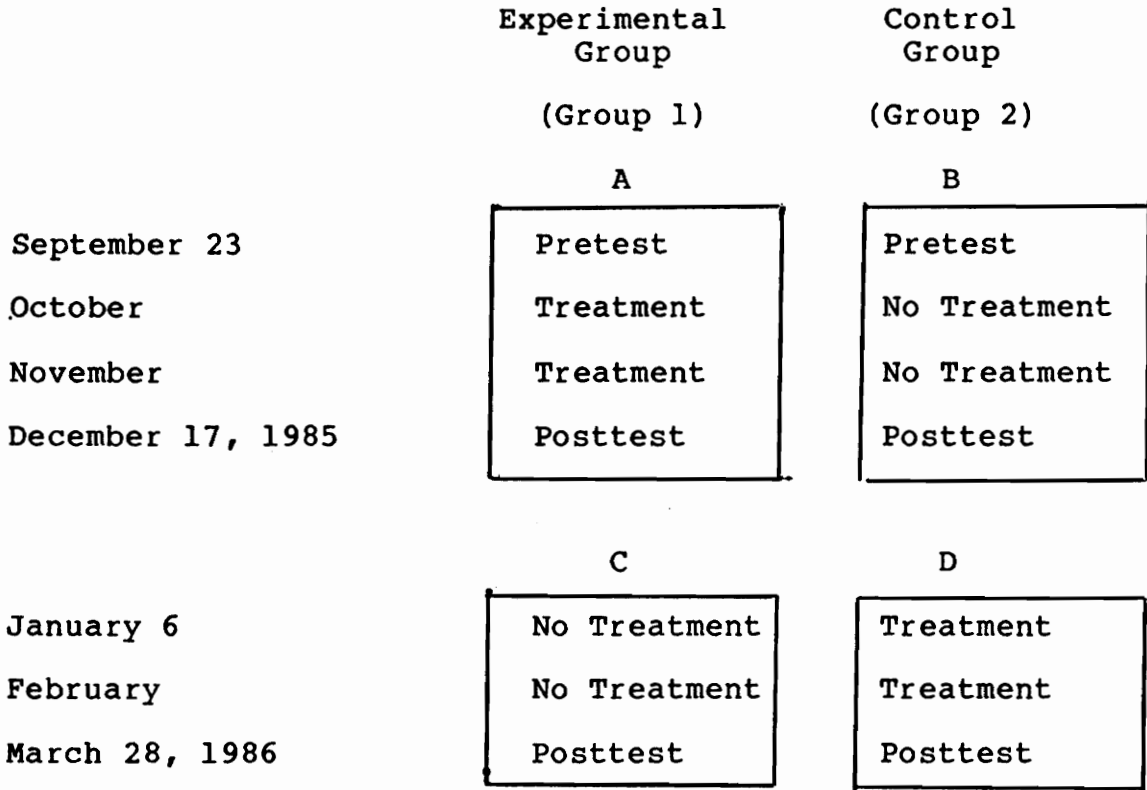


FIGURE 11

NONRANDOMIZED CONTROL-GROUP PRETEST-POSTTEST DESIGN EXPANDED

Results from analysis indicated there were no statistically significant differences found for any mental well-being measure. Lack of statistically significant differences were also indicated for resting heart rate recordings and skinfold calibrations. There was a statistically significant difference in both systolic and

diastolic blood pressure measurements. This difference is perceived to be attributed to the training effect found in the aerobex component of the treatment. Lack of statistically significant findings obstructed the opportunity to replicate conclusive findings. The statistically significant differences found for resting blood pressure measurements failed to achieve the same status in the replication. Participation in treatment activities twelve weeks following extinction, failed to meet the paradigm established, but the results indicated almost half (47.3%) of the participants from Group 1 were still involved in wellness activities three months after their program ended.

Conclusions are drawn from these findings in the next section.

Conclusions

Application of findings to the research questions led to the following conclusions:

1. The four-component, structured wellness program lasting twelve weeks had no statistically significant effect on elementary school faculty and staff self-reported general well-being, stress evaluation, or job satisfaction.
2. The four component, structured wellness program lasting twelve weeks had no statistically significant

effect on elementary school faculty and staff skinfold calibrations or resting heart rate.

3. The four component, structured wellness program lasting twelve weeks had a statistically significant effect on elementary school faculty and staff resting systolic and resting diastolic blood pressure measurements.

4. Lack of statistically significant findings during the first run of the wellness intervention (September 23 - December 17, 1985) restrained replication of Research Question 1 during the second treatment run (January 6 - March 28, 1986) with a different experimental group.

5. The replicated four component, structured wellness program lasting twelve weeks had no statistically significant effect on elementary school faculty and staff self-reported general well-being, trait anxiety, or job satisfaction. Lack of statistical significance was also found for skinfold calibrations, resting heart rate recordings, and resting systolic and resting diastolic blood pressure measurements.

6. Continuation of wellness intervention activities twelve weeks following treatment extinction did not meet the criterion established, but results indicated that almost half (47.3%) of the participants continued in some way with 100% of the activities.

Speculations

The implementation of wellness programs at the school worksite is a prudent endeavor. Significant findings have been documented in studies by Blair (1984), Collingwood (1982 and 1984), Townsend (1984), Holroyd (1983), Garber (1984), Sharp (1982), and Croyle (1982).

Two positive outcomes have been identified in this research investigation: statistically significant differences in resting systolic and resting diastolic blood pressure recordings and 47.3 percent continuation level in wellness activities three months following treatment extinction. These results provide valuable support for continuing empirical research of school worksite wellness programs; however, there are areas of concern related to this study that must be considered:

1. Twelve weeks may be inadequate to significantly impact mental and physiological well-being.

2. The four component structured wellness program may not have been specific enough to significantly impact self-reported stress, job-satisfaction, or well-being. Participants were only actively involved in aerobic exercise through Aerobex sessions or documented activities found in the Activity Log of the Governor's Physical Fitness Program For School Personnel. Health promotion

seminars and handout materials were subjective in nature lacking the benefits of a program for active participation.

3. A lack of leadership possibly hindered participant motivation and commitment. Program success depends on a knowledgeable and competent leader who can inspire participants, monitor participation levels, and promote the program.

4. Decisive control of dropouts was a problem in those instances where a participant attended a small percentage of treatment sessions yet their scores were used for pretest and posttest dependent variable measures.

5. The control group possibly impacted the posttest results by identifying with the treatment. They actually became involved with wellness activities, or changed their attitude toward promotion of preventative health strategies while acting as a control for the first run of the wellness program.

Recommendations For Future Studies

The recommendations for further study in the area of public school faculty and staff wellness programs are as follows:

1. This research investigation should be repeated in a multiple school setting.

2. The independent variable should be refined to enhance the quality of treatment. The program of activities for wellness intervention should be comprehensive and activity oriented.

3. The process of designing a wellness program that provides motivation and commitment should begin with a knowledgeable and capable leader. Consideration should also be given to a confidential participant health risk appraisal.

4. The length and duration of treatment time should be expanded. Continual reinforcement is conducive to the effectiveness of wellness intervention activities. The total time line should be doubled with the optimum span extending over the entire school year.

5. Treatment intervention could be expanded to include the services of a counselor to assist participants who experience problems arising from emotional, personal, or health related difficulties. This would provide an opportunity to reach those participants who fail to respond to group activities.

6. To replicate the experimental treatment, participants who act as a control group should not become a second experimental group within the same research design.

7. A more sensitive dependent variable measure could be incorporated in the research design.

8. More experimental control for identifying and statistically treating those dropouts who are involved in treatment intervention at varying intensity levels would enhance opportunities for impacting significant outcomes.

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APPENDICIES

APPENDIX A. WELLNESS ACTIVITIES INVENTORY

WELLNESS ACTIVITIES INVENTORY

Code No. _____

Date _____

Group _____

This instrument will assess present involvement in wellness activities and will provide information on each participant's present lifestyle.

I. Wellness Activities

(Check yes or no as it applies to your situation)

A. Are you currently participating in any of the following:

	Yes	No
1. Health of Fitness Club Member	_____	_____
Active	_____	_____
Inactive	_____	_____
2. Nutritional Program designed by a doctor, hospital, health organization, or professional nutritionist	_____	_____
3. Stress Management Program (relaxation, group therapy, etc.)	_____	_____
4. Aerobics, Jazzercise, etc.	_____	_____
5. Jogging, biking, swimming, walking or other cardiovascular program	_____	_____
6. Calisthenic, stretching, or other exercise program	_____	_____
7. Weight-training, Nautilus, or similar strength training program	_____	_____

8. Organized Activity: volleyball, softball, bowling, etc. _____
9. Structured wellness program _____
10. Weight loss program or diet _____
11. Please list any other health or fitness related program you presently participate in _____
-
-

II. Lifestyles

Directions -

Put a check beside each statement that applies to you.

1. Alcohol Use

- ___ I drink less than two drinks a day.
- ___ In the past year, I have not driven an automobile after having more than two drinks.
- ___ When I'm under stress, I do not drink more.
- ___ I do not do things when I'm drinking that I later regret.
- ___ I have not experienced any problem because of my drinking in the past.

2. Tobacco Use

- ___ I have never smoked cigarettes.
- ___ I haven't smoked cigarettes in the past year.
- ___ I do not use any form of tobacco (pipes, cigars, chewing tobacco).
- ___ I smoke only low tar and nicotine cigarettes.
- ___ I smoke less than one pack of cigarettes a day.

3. Blood Pressure

- ___ I have had my blood pressure checked within the last six months.
- ___ I have never had high blood pressure.

- I do not currently have high blood pressure.
- I make a conscious effort to avoid salt in my diet.
- There is no history of high blood pressure in my family.

4. Weight/Body Fat

- According to height and weight charts, I am in the average range.
- I have not been on a weight reduction diet in the past year.
- There is no place on my body that I can pinch an inch of fat.
- I am satisfied with the way my body looks.
- None of my family, friends, or health care professionals has ever urged me to lose weight.

5. Physical Fitness

- I do some form of vigorous exercise for at least 30 minutes three times a week or more.
- My resting pulse is 80 beats a minute or less.
- I don't get fatigued easily while doing physical work.
- I engage in some recreational sport such as tennis or swimming on a weekly basis.
- I would say that my level of physical fitness is higher than most of the people in my age group.

6. Stress/Anxiety Level

- I find it easy to relax.
- I am able to cope with stressful events as well as or better than most people.
- I do not have trouble falling asleep or waking up.
- I rarely feel tense or anxious.
- I have no trouble completing tasks I have started.

7. Car Safety

- I always use seat belts when I drive.
- I always use seat belts when I am a passenger.
- I have not had an automobile accident in the past three years.
- I have not had a speeding ticket or other moving violation for the past three years.
- I never ride with a driver who has had more than two drinks.

8. Relationships

- I am married and living with my spouse.
- I have a lot of close friends.

- ___ I am able to share my feelings with my spouse and/or other family members.
- ___ When I have a problem, I have other people with whom I can talk it over.
- ___ Given a choice between doing things by myself or with others, I usually choose to do things with others.

9. Rest/Sleep

- ___ I almost always get between seven and nine hours of sleep a night.
- ___ I wake up few, if any, times during the night.
- ___ I feel rested and ready to go when I get up in the morning.
- ___ Most days, I have a lot of energy.
- ___ Even though I sometimes have a chance, I never take naps during the day.

10. Life Satisfaction

- ___ If I had my life to live over, I wouldn't make all that many changes.
- ___ I've accomplished most of the things that I've set out to do in my life.
- ___ I can't think of an area in my life that really disappoints me.
- ___ I am a happy person.
- ___ As compared to the people with whom I grew up, I feel I've done as well or better than most of them with my life.

APPENDIX B. WORK RELATIONSHIP SURVEY

WORK RELATIONSHIP SURVEY

Code Number _____ Group _____ Date _____

Directions: The statements below relate to your feelings about relationships with others whom you come into contact with at work. There are also statements directed towards how you feel about the concept of wellness. Read each statement and then circle the appropriate number to indicate how you feel about that statement: 1 - Strongly Agree, 2 - Agree, 3 - Neutral, 4 - Disagree, and 5 - Strongly Disagree. There are no right or wrong answers.

	Strongly <u>Agree</u>	Agree	Neutral	Disagree	Strongly Disagree
1. Students appreciate the job I perform in the school.	1	2	3	4	5
2. Demand for job accountability is reasonable in regards to performance expectations.	1	2	3	4	5
3. My co-workers think that I exceed job expectations.	1	2	3	4	5
4. Interaction with students is a difficult aspect of my job.	1	2	3	4	5
5. To attend to physical illnesses outside my self-care limits, I should seek professional health care.	1	2	3	4	5
6. My salary, compared to others who spent as much time in training or as much time on the job as I, is adequate.	1	2	3	4	5

	<u>Strongly</u> <u>Agree</u>	<u>Agree</u>	<u>Neutral</u>	<u>Disagree</u>	<u>Strongly</u> <u>Disagree</u>
7. I do not completely understand the wellness concept.	1	2	3	4	5
8. My co-workers do not support me on the job.	1	2	3	4	5
9. There is a good relationship between the adult workers and students in our school.	1	2	3	4	5
10. The administration caters to parents and ignores my needs.	1	2	3	4	5
11. If I had to do it all over again, I would not choose the job I have now.	1	2	3	4	5
12. I feel my co-workers inadvertently take advantage of many situations occurring during the school day.	1	2	3	4	5
13. I feel I should not have to spend my own money for materials needed on the job.	1	2	3	4	5
14. I should have an opportunity to take a needed daily break at work.	1	2	3	4	5
15. Disciplinary action in regards to work expectations by the office is inadequate.	1	2	3	4	5
16. I am very conscious of the job expectations placed upon me.	1	2	3	4	5
17. I get along well with parents in our school.	1	2	3	4	5

	<u>Strongly Agree</u>	<u>Agree</u>	<u>Neutral</u>	<u>Disagree</u>	<u>Strongly Disagree</u>
18. Materials are not equally shared among my co-workers in our school.	1	2	3	4	5
19. I feel students should openly communicate with teachers and other adults working in the school.	1	2	3	4	5
20. I perceive my job to be stressful.	1	2	3	4	5
21. Parents do not support my role in the school like they should.	1	2	3	4	5
22. I feel I should only be evaluated by my co-workers in the building.	1	2	3	4	5
23. I feel individuals should take deliberate steps to increase their knowledge of how to be healthy.	1	2	3	4	5
24. I treat parents very good.	1	2	3	4	5
25. I spend time on job related work after hours when I do not think I should.	1	2	3	4	5
26. The administration is not receptive to my needs.	1	2	3	4	5
27. I feel I am working more and contributing less to the student's welfare in our building.	1	2	3	4	5
28. Parents in our building are always negative when talking to me about school problems.	1	2	3	4	5

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
29. I feel everyone should make conscious decisions about exercising, eating habits, physical stress, drugs, and safety.	1	2	3	4	5
30. Current administrative evaluation methods accurately reflect my performance.	1	2	3	4	5
31. I am required to attend too many meetings.	1	2	3	4	5
32. I feel parents should be welcomed in the school anytime.	1	2	3	4	5
33. All workers in the school should pursue activities (classes, workshops, etc.) that would improve their quality of work.	1	2	3	4	5
34. My superiors are competent.	1	2	3	4	5
35. I do not think relaxation exercises are of any benefit.	1	2	3	4	5

APPENDIX C. EXAMPLE OF HEALTH PROMOTION HANDOUT

Fact Sheet on Heart Attack, Stroke, and Risk Factors



American Heart
Association

What a Heart Attack Is

The human heart is basically a muscle that pumps blood. It has its own blood vessels, the coronary arteries, that nourish it to keep it alive. In most cases, heart attack is caused by the gradual buildup of fatty deposits, composed mainly of cholesterol, in the inner arterial wall. Progressively, these deposits narrow the artery, decreasing or stopping blood flow to the heart. Decreased blood flow may damage the heart muscle. Complete blockage of blood flow deprives an area of the heart muscle of needed oxygen and nutrients, causing death of that area of muscle. This is a heart attack. The dying area may trigger electrical activity resulting in ventricular fibrillation, an uncoordinated twitching movement with no effective cardiac contraction.

In many cases, if trained medical personnel are immediately available, they can get the heart beating again through the use of electrical shock and/or drugs.

If the heart can be kept beating, and enough heart muscle remains undamaged, small blood vessels may gradually detour blood around the blocked arteries. This is called collateral circulation, the heart's own compensatory method where other blood vessels take over the functions of the blocked artery.

The key to survival lies in being able to recognize the warning signals of heart attack and getting immediate medical attention.

How To Recognize a Heart Attack

If you feel an uncomfortable pressure, fullness, squeezing or pain in the center of the chest (that may spread to the shoulders, neck or arms) lasting for two minutes or more, you could be having a heart attack. Sweating, dizziness, fainting, nausea, or shortness of breath may also occur. Sharp, stabbing twinges of pain are usually not signals of a heart attack.

The natural reaction is to deny what's happening. But before deciding to wait, remember this: an estimated

350,000 heart attack victims died before reaching the hospital last year, many because they refused to believe they were having a heart attack. If the typical chest discomfort lasts for two minutes or more, call the local emergency medical service (EMS) immediately. Or if the EMS is not available, get to a hospital with emergency cardiac care as soon as possible. Plan in advance the route that's best from home and work. Discuss with your doctor the possible choices. Call your local Heart Association and ask which recognized emergency medical service and hospitals cover your area. Keep emergency information where you can easily get to it, and develop a "buddy" system with someone you know.

Emergency Aid For The Heart Attack Victim

If you discover someone who has collapsed, chances are you can try to save that person, if you can perform CPR (cardiopulmonary resuscitation). CPR will teach you how to tell whether the victim has fainted, stopped breathing, or the heart has stopped. Then you'll know how to keep a cardiac arrest victim alive with mouth-to-mouth ventilation and closed chest cardiac compression until medical help arrives. Your local American Heart Association can tell you where CPR is taught in your area.

Recovery And Rehabilitation

When people are hospitalized by heart attack, they often become depressed and anxious about whether they'll be able to function as fully physically, socially, professionally and sexually as they did before.

Unless the heart attack was extremely severe, they can be assured that in time and with the right care, they'll usually be able to function again as well as they did before the attack.



What a Stroke Is

A stroke occurs when there is interference with the blood supply to the brain. In order to function, brain cells must have a continuous and ample supply of oxygen-rich blood, which, if completely stopped, causes the cells to die. One of the frequent causes of stroke is the blocking of one of the arteries that supplies blood to a section of the brain by a clot that forms inside the artery. This is a condition called cerebral (brain) thrombosis.

A clot is not likely to occur in a healthy artery. But in arteries damaged by hardening of the arteries (atherosclerosis), a thick, rough deposit (plaque) forms on the artery wall and narrows the passageway, slowing blood flow. As these deposits build up and project into the blood stream, clots are apt to form around them.

Sometimes a wandering clot is carried in the bloodstream and lodges in one of the cerebral arteries and stops blood flow. This is called a cerebral embolism.

When a clot, either a thrombus or an embolus, plugs up a cerebral artery, the result is a cerebrovascular occlusion — another name for stroke.

Stroke also occurs when a diseased artery in the brain bursts, flooding the surrounding tissue with blood. This is called a cerebral hemorrhage. Cells nourished by the artery are deprived of blood and squeezed by the pressure that builds up inside the skull and cannot function. The accumulation of blood from the burst artery soon forms a clot. By displacing or destroying brain tissue, it may interfere with brain function, causing physical disability.

A cerebral hemorrhage is more likely to occur when the patient suffers from a combination of hardening of the arteries and high blood pressure.

Hemorrhage of an artery in the brain may also be caused by a head injury or by a burst aneurysm. Aneurysms are blood-filled pouches that balloon out

associated with high blood pressure. Aneurysms do not always cause trouble, but when one bursts in the brain, the result is a stroke.

When a stroke occurs, nerve cells in the damaged part of the brain cannot function, so the part of the body controlled by these cells cannot function either.

The result of a stroke is usually hemiparesis — (paralysis of one side of the body). It also may result in aphasia (loss of the power of expression or understanding communications), or in loss of memory. The effects may be slight or severe, temporary or permanent, depending on which brain cells have been damaged and how widespread the damage is. Effects also depend on how well the body can repair its system of blood supply, or how rapidly other areas of the brain tissue can take over the work of the damaged cells.

Prevention of stroke through modification of risk factors is particularly important since injured brain cells cannot regenerate or produce replacement cells.

How To Recognize The Early Signals Of Stroke

The primary signal is a sudden, temporary weakness or numbness of face, arm and/or leg on one side of the body. Other signals include: temporary loss of speech, or trouble in speaking or understanding speech; temporary dimness or loss of vision, particularly in one eye; unexplained dizziness, unsteadiness or sudden falls.

Many strokes could be prevented if hypertension (high blood pressure), a leading cause of stroke, is diagnosed and controlled. Many major strokes are preceded by "little strokes" or warning signals, days, weeks or months before the more severe event. Prompt medical or surgical attention to these symptoms may prevent a major stroke.

1985 Heart Facts Reference Sheet

Prevalence* — 43,500,000 Americans have one or more forms of heart or blood vessel disease.

- high blood pressure — 37,990,000 (more than one in 5 adults).
- coronary heart disease — 4,670,000.
- rheumatic heart disease — 2,040,000.
- stroke — 1,900,000.

Cardiovascular Disease (CVD) Deaths — 985,040 in 1982 (nearly 50 percent of all deaths).

- nearly one-fifth of all persons killed by CVD are under age 65
- other 1982 mortality: cancer 435,550; accidents 95,680.

Heart Attack — caused 554,900 deaths in 1982.

- heart attack is the leading cause of death.
- 4,670,000 alive today have history of heart attack or angina pectoris (chest pain), or both.
- 350,000 a year die of heart attack before they reach hospital — average victim waits three hours before deciding to seek help.
- as many as 1,500,000 Americans may have a heart attack this year and about 550,000 of them will die.

Stroke — killed 159,600 in 1982; aftermath afflicts 1,900,000.

High Blood Pressure — afflicts an estimated 37,990,000 adults.

- of those who do know they have it, many are untreated or inadequately controlled.
- only a minority have it under adequate control.
- for 90 percent of those with high blood pressure, science doesn't know the cause; but it is easily detected and usually controllable.

Atherosclerosis — contributed to many of the 714,500 heart attack and stroke deaths in 1982.

Rheumatic Heart Disease Prevalence — 100,000 children; 1,940,000 adults.

- rheumatic fever and rheumatic heart disease killed about 6,700 in 1982. But modern antibiotic therapy has sharply reduced mortality. In 1950, for example, more than 22,000 Americans died of these diseases.

Congenital or Inborn Heart Defects — 35 recognizable types of defects.

- about 25,000 babies are born every year with heart defects.
- postnatal mortality from heart defects was estimated to be 6,600 in 1982.

Coronary Care Units (CCU) — most of the over 6,000 general hospitals in U.S. have coronary care capability.

- specialized coronary care for heart attack victims can reduce in-hospital deaths by about 30 percent

Coronary Artery Bypass Surgery — an estimated 170,000 were performed in 1982.

CVD Cost — \$72.1 billion (AHA est.) in 1985 (includes physician and nursing services, hospital and nursing home services, cost of medications and lost output due to disability).

Research — from 1949 through 1984-85, more than \$522,000,000 in American Heart Association dollars have gone into research.

- by policy, AHA allocates 60 percent of its national budget to research.
- affiliates allocate at least 15 percent of their gross divisible income to research.

*The total number of cases of a given disease existing in a population at a specific time.

WE'RE FIGHTING FOR
YOUR LIFE



American Heart
Association



The Stroke Profile

A likely candidate for stroke will probably have high blood pressure and/or a history of brief, intermittent stroke episodes. A thorough medical examination often shows evidence of hardening of the arteries (atherosclerosis). A diabetic has a greater chance of stroke. Tests may also reveal an increased cholesterol level and other fats in the blood. Less well-documented risk factors are gout (uric acid elevation) and heavy smoking.

What You Can Change

There are several ways to improve your chances of avoiding a heart attack or stroke. Take a long look at the way you live. Your life may depend on it.

Have Your Blood Pressure Checked Once A Year.

High blood pressure is a major risk factor in heart attack and is the major risk factor in stroke.

Don't Smoke Cigarettes. Smoking increases the risk of heart attack.

Eat Well But Wisely. Eat a well-balanced diet low in cholesterol and saturated fats.

Exercise Regularly And Sensibly. Avoid a sedentary lifestyle; if overweight, lose weight by eating a low-calorie, well-balanced diet and exercising.

Have Medical Checkups. The presence of risk factors, such as high blood pressure, elevated cholesterol, overweight, lack of exercise and cigarette smoking, indicate a need for a physician's guidance and supervision in preventing heart attack and stroke.

What You Can Control With Medical Supervision

Serum Cholesterol. Cholesterol is a fatty substance found in everyone's living tissue. The body needs it and gets it through diet and by manufacturing it. But too much cholesterol in the blood can build up on the walls of the arteries, narrowing their passageways,

decreasing the blood supply to the heart, and setting the stage for heart attack and stroke. Your doctor can prescribe diet regimens and drugs to keep the cholesterol level within a normal range.

High Blood Pressure. Modern medicine has not yet identified the basic cause of most high blood pressure, but a variety of lifestyle changes and medications are available which a doctor can prescribe to control it.

Diabetes. Diabetes, or a familial tendency toward it, is associated with an increased risk of heart attack and stroke. Your doctor can detect diabetes and prescribe diet and weight control programs with supportive exercise therapy and drugs if necessary, to keep it in check.

What You Can't Control

Heredity. Although there is no evidence that heart attack and stroke are hereditary, some families have a higher incidence of these diseases, increasing the importance of reducing other risk factors which can be controlled.

Sex. Young women have a lower death rate for heart attack than men, but after menopause, apparently because of hormonal changes, the rate for women increases sharply but never reaches that of men.

Race. Black Americans are almost 45% more likely to have high blood pressure than whites and suffer strokes at an earlier age with more severe results.

Age. More than one-fifth of all heart attack deaths occur before the age of 65. And stroke, generally thought to be a disease of older persons, strikes younger persons at an alarming rate. One in seven of all stroke deaths occurs under age 65.

APPENDIX D. GOVERNOR'S PHYSICAL FITNESS AWARD PROGRAM
- SCHOOL PERSONNEL

GOVERNOR'S PHYSICAL FITNESS AWARD PROGRAM
- SCHOOL PERSONNEL

PROGRAM OVERVIEW

This is a fitness award program which has been endorsed by the Governor's Council on Physical Fitness and Sports. In executive order number ten, May 1982, the Governor stated, "The council shall have the general responsibility of improving physical fitness opportunities for all citizens of Virginia, and shall serve to demonstrate the Commonwealth's support for health and fitness." The purpose of this program is to encourage individuals that do not exercise regularly to begin and continue a program that will improve the condition of the cardiovascular system. It is also to challenge those already involved in a fitness program to increase their levels of participation. Although there are many other factors that influence wellness, such as nutrition, smoking, and alcohol, this program is specifically emphasizing physical fitness. The program is administered by the State Department of Education, Health, Physical Education, and Driver Education Service. The awards are provided by Blue Cross/Blue Shield of Virginia.

PROCEDURES FOR WINNING AN AWARD

Eligibility

Central officer personnel, teachers, administrators and other school personnel are eligible for the awards.

Participation

During the school year, participants may win an award if they participate in a continuous fitness program of a 16 week duration. To compensate for sickness and other unforeseen circumstances, 18 weeks will be allowed in which to complete the 16 week program. Participants must participate a minimum of three times per week to qualify for an award.

Awards

Personal Award - There are three levels of personal awards: Bronze - 21 points per week (336 total points), Silver - 30 points per week (480) total points), Gold - 45 points per week (720 total points). Refer to activity chart for time/distance requirements to earn points.

School Award - School may apply for the School Award. For a school to be eligible for this award, at least 70% of all

full-time personnel assigned to the applying school must qualify for either the Bronze, Silver, or Gold award. The award to a school is a pennant. A school may retain this pennant if the number of personnel participation increases by at least 5% the following year. The pennant may be permanently retained if the number of personnel participation increases by 5% for two additional years. If this is not accomplished, the pennant must be returned. Award winners are encouraged to display their awards in the classroom, office, or somewhere in the school.

Record Keeping

Participants will need to maintain a Daily Activity Log. The daily activity log will serve as an award application. The principal may wish to designate a faculty member as coordinator for the purpose of monitoring the program and collecting and mailing the daily activity logs.

Activity Substitution

Participants wishing to substitute activities on the activity chart must request approval. These questions should be submitted to Del L. Moser, Supervisor, Health and Physical Education, P. O. Box 6Q, Richmond, Virginia, 23216. Phone 804/225-2669.

Deadline

All award applications (Daily Activity Log), personnel or school must be submitted on or before April 15, to Del L. Moser, Supervisor, Health and Physical Education, P. O. Box 6Q, Richmond, Virginia, 23216. Phone 804/225-2669. Participants must sign their daily activity log. The principal must sign the daily activity log of all personnel of the school. The superintendent or a designee must sign the daily activity log for participants not assigned to a school. Itinerant teachers may establish one school as a base school for this program.

GOVERNOR'S PHYSICAL FITNESS AWARD PROGRAM FOR SCHOOL PERSONNEL

ACTIVITY LOG

CREATED AND ENDORSED BY:
DEPARTMENT OF EDUCATION
GOVERNOR'S COUNCIL ON PHYSICAL FITNESS
AND SPORTS

PROGRAM MATERIAL AND AWARD FURNISHED
IN THE INTEREST OF YOUR GOOD HEALTH BY



Blue Cross
Blue Shield
of Virginia

CONGRATULATIONS! By participating in this fitness program you are demonstrating your personal interest in the value of getting and remaining physically fit. A few notes on completing the form:

- You may exercise as often as you like but **only** record 3 sessions per week on the Activity Log
- Be sure to print your name and school or building.
- Total all points for the 16 weeks. To qualify for awards you must accumulate at least:
 - 336 Points—Bronze
 - 480 Points—Silver
 - 720 Points—Gold
- When completed, sign the Activity Log and have Principal or superintendent sign form and give the completed form to designated coordinator. If the school does not have a coordinator, mail to Del L. Moser, Supervisor, Health and Physical Education, P.O. Box 60, Richmond, Va 23216

		ACTIVITY	DATE	POINTS
WEEK 1	1			
	2			
	3			
WEEK 2	1			
	2			
	3			
WEEK 3	1			
	2			
	3			
WEEK 4	1			
	2			
	3			
TOTAL POINTS				

NAME _____
(PRINT)

		ACTIVITY	DATE	POINTS
WEEK 9	1			
	2			
	3			
WEEK 10	1			
	2			
	3			
WEEK 11	1			
	2			
	3			
WEEK 12	1			
	2			
	3			
TOTAL POINTS				

Principal or Superintendent _____

		ACTIVITY	DATE	POINTS
WEEK 5	1			
	2			
	3			
WEEK 6	1			
	2			
	3			
WEEK 7	1			
	2			
	3			
WEEK 8	1			
	2			
	3			
TOTAL POINTS				

SCHOOL _____
 DIVISION _____

		ACTIVITY	DATE	POINTS
WEEK 13	1			
	2			
	3			
WEEK 14	1			
	2			
	3			
WEEK 15	1			
	2			
	3			
WEEK 16	1			
	2			
	3			
TOTAL POINTS				

I qualified for _____ GOLD _____ SILVER _____ BRONZE

ACTIVITY CHART

	<u>ACTIVITY</u>	<u>DISTANCE</u>	<u>TIME</u>	<u>POINTS</u>
Bronze Award 16 weeks (must get 21 points a week)	Walking	2 miles	20-28 min.	7
	Running	1½ miles	12-15 min.	7
	Swimming	850 yds.	21-28 min.	7
	Handball/Racketball/Squash	playing time	40-45 min.	7
	Basketball/Soccer/Rugby	playing time	40-45 min.	7
	Hockey/Lacrosse	playing time	40-45 min.	7
	Stationary Cycling (at H/R 140 bpm)	65 RPM or 17.5 MPH	40-min.	7
	Rope Skipping	90-110 steps/min.	15-min.	7
	Tennis (singles only)	playing time	60 min.	7
	Aerobic Dancing/Square Dancing	actual time	45 min.	7
	Group Exercise Class/Jazzercise, etc.	actual time	45 min.	7
	Cycling	6 miles	24-30 min.	7
Silver Award 16 weeks (30 points per week)	Walking	2.5 miles	30-35 min.	10
	Running	2 miles	16-20 min.	10
	Swimming	1,000 yds.	24-32 min.	10
	Handball/Racquetball/Squash	playing time	60 min.	10
	Basketball/Soccer/Rugby	playing time	60 min.	10
	Hockey/Lacrosse	playing time	60 min.	10
	Stationary Cycling (at H/R 140 bpm)	65 RPM or 17.5 MPH	50 min.	10
	Rope Skipping	90-110 Steps/min.	20 min.	10
	Tennis (singles only)	playing time	75 min.	10
	Aerobic Dancing/Square Dancing	actual time	60 min.	10
	Group Exercise Class/Jazzercise, etc.	actual time	60 min.	10
	Cycling	8 miles	24-32 min.	10
Gold Award 16 weeks (45 points per week)	Walking	4 miles	50-56 min.	15
	Running	3 miles	24-30 min.	15
	Swimming	1500 yds.	35-40 min.	15
	Handball/Racquetball/Squash	playing time	1½ hrs.	15
	Basketball/Soccer/Rugby	playing time	1½ hrs.	15
	Hockey/Lacrosse	playing time	1½ hrs.	15
	Stationary Cycling (at H/R 140 bpm)	65 RPM or 17.5 MPH	1 hour	15
	Rope Skipping	90-110 Steps/min.	30 min.	15
	Tennis (singles only)	playing time	90 min.	15
	Aerobic Dancing/Square Dancing	actual time	90 min.	15
	Group Exercise Class, etc.	actual time	90 min.	15
	Cycling	12 miles	45-50 min.	15

Terms: H/R - Heart Rate
 BPM - Beats per minute
 RPM - Revolutions per minute
 MPH - Miles per hour

Note: Only count actual playing or activity time. Do not count time outs, etc.



sample

GOVERNOR'S PHYSICAL FITNESS AWARD FOR SCHOOL PERSONNEL

This is to certify that

has participated in the
Governor's Physical Fitness Award Program for School Personnel
and has successfully completed the fitness requirements for
the *Gold* award.

Your participation in this program is an important step toward
increasing fitness awareness in the Commonwealth of Virginia.

Date

Charles S. Robb

The Honorable Charles S. Robb
Governor of Virginia

APPENDIX E. GENERAL WELL-BEING SCHEDULE

General Well-Being Schedule

Appendix E is designed to collect information about your health and feelings. Please write and code your ID number in the lower left hand corner of the green answer sheet in the section marked 'IDENTIFICATION NUMBER' using a number 2 pencil, and code your ID number at the bottom of this page where indicated. Answer questions 1-4 on this page; respond to all remaining questions on the answer sheet provided by blackening the one most appropriate response.

For questions 1-4, please circle the appropriate response on this page according to the scale shown after each question. Your responses should reflect your feelings DURING THE PAST MONTH.

1. How concerned or worried about your health have you been?

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Not
concerned
at all

Very
concerned

2. How relaxed or tense have you been?

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Very
relaxed

Very
tense

3. How much energy, pep, vitality have you felt?

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

No energy
at all,
listless

Very
energetic,
dynamic

4. How depressed or cheerful have you been?

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Very
depressed

Very
cheerful

Your ID Number: / / / /

For questions 5-18, please blacken the appropriate response on your answer sheet on the basis of your feelings DURING THE PAST MONTH.

5. How have you been feeling in general?
 1. In excellent spirits
 2. In very good spirits
 3. In good spirits mostly
 4. Up and down in spirits a lot
 5. In low spirits mostly
 6. In very low spirits

6. Have you been bothered by nervousness or your "nerves"?
 1. Extremely so; to the point where I could not work or take care of things
 2. Very much so
 3. Quite a bit
 4. Some; enough to bother me
 5. A little
 6. Not at all

7. Have you been in firm control of your behavior, thoughts, emotions OR feelings?
 1. Yes, definitely so
 2. Yes, for the most part
 3. Generally so
 4. Not too well
 5. No, and I am somewhat disturbed
 6. No, and I am very disturbed

8. Have you felt sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile?
 1. Extremely so; to the point that I have just about given up
 2. Very much so
 3. Quite a bit
 4. Some; enough to bother me
 5. A little bit
 6. Not at all

9. Have you been under or felt you were under any strain, stress, or pressure?
 1. Yes; almost more than I could bear or stand
 2. Yes; quite a bit of pressure
 3. Yes; some, more than usual
 4. Yes; some, but about usual
 5. Yes; a little
 6. Not at all

10. How happy, satisfied, or pleased have you been with your personal life?

1. Extremely happy; could not have been more satisfied or pleased
2. Very happy
3. Fairly happy
4. Satisfied; pleased
5. Somewhat dissatisfied
6. Very dissatisfied

11. Have you had any reason to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel, or of your memory?

1. Not at all
2. Only a little
3. Some; but not enough to be concerned or worried about
4. Some and I have been a little concerned
5. Some and I am quite concerned
6. Yes, very much so and I am very concerned

12. Have you been anxious, worried or upset?

1. Extremely so; to the point of being sick or almost sick
2. Very much so
3. Quite a bit
4. Some; enough to bother me
5. A little bit
6. Not at all

13. Have you been waking up fresh and rested?

1. Every day
2. Most every day
3. Fairly often
4. Less than half the time
5. Rarely
6. None of the time

For questions 14-18, respond on your answer sheet using the scale below, and based on your feelings DURING THE PAST MONTH.

1. All the time
2. Most of the time
3. A good bit of the time
4. Some of the time

5. A little of the time

6. None of the time

14. Have you been bothered by any illness, bodily disorder, pains, or fears about your health?

15. Has your daily life been full of things that were interesting to you?

16. Have you felt down-hearted and blue?

17. Have you been feeling emotionally stable and sure of yourself?

18. Have you felt tired, worn out, used-up, or exhausted?

APPENDIX F. SELF-EVALUATION QUESTIONNAIRE

SELF-EVALUATION QUESTIONNAIRE

(Trait Anxiety Sub-scale of the State Trait Anxiety Inventory)

A number of statements which people have used to describe themselves are given in items 1-20. Read each statement and then blacken the appropriate response on your answer sheet. There are no right or wrong answers. Do not spend too much time on any one statement -- give the answer which seems to describe how you generally feel, using the scale below:

1 = Almost Never	3 = Often
2 = Sometimes	4 = Almost Always

-
1. I feel pleasant.
 2. I tire quickly.
 3. I feel like crying.
 4. I wish I could be as happy as others seem to be.
 5. I am losing out on things because I can't make up my mind soon enough.
 6. I feel rested.
 7. I am "calm, cool, and collected".
 8. I feel that difficulties are piling up so that I cannot overcome them.
 9. I worry too much over something that really doesn't matter.
 10. I am happy.
 11. I am inclined to take things hard.
 12. I lack self confidence.
 13. I feel secure.
 14. I try to avoid facing a crisis or difficulty.
 15. I feel blue.
 16. I am content.
 17. Some unimportant thought runs through my mind and bothers me.
 18. I take disappointments so keenly that I can't put them out of my mind.
 19. I am a steady person.

20. I get in a state of tension or turmoil as I think over my recent concerns and interests.

APPENDIX G. JOB QUESTIONNAIRE

JOB QUESTIONNAIRE

Items 1-18 are statements about jobs. Please respond on your answer sheet by blackening the one most appropriate response to each item using the scale below:

- 1 = Strongly Agree
2 = Agree
3 = Undecided
4 = Disagree
5 = Strongly Disagree
-

1. My job is like a hobby to me.
2. My job is usually interesting enough to keep me from getting bored.
3. It seems that my friends are more interested in their jobs.
4. I consider my job rather unpleasant.
5. I enjoy my work more than my leisure time.
6. I am often bored with my job.
7. I feel fairly well satisfied with my present job.
8. Most of the time I have to force myself to go to work.
9. I am satisfied with my job for the time being.
10. I feel that my job is no more interesting than others I could get.
11. I definitely dislike my work.
12. I feel that I am happier in my work than most other people.
13. Most days I am enthusiastic about my work.
14. Each day of work seems like it will never end.
15. I like my job better than the average worker does.
16. My job is pretty uninteresting.
17. I find real enjoyment in my work.
18. I am disappointed that I ever took this job.

APPENDIX H. SKINFOLD MEASUREMENTS

SKINFOLD MEASUREMENTS

Purpose:

To estimate percentage of total body which is adipose (fat) tissue. Theoretically, 50% of adipose tissue is subcutaneous and 50% is intramuscular. By measuring skinfolds at various subcutaneous sites, an estimate of total percentage body fat can be made.

Explanation:

Skinfolds are measured on the right side of the body using a skinfold caliper.

Grasp the skinfold between the thumb and forefinger. The skinfold should include two thicknesses of skin and subcutaneous fat, but not muscle.

Apply the calipers approximately one centimeter below the fingers holding the skinfold, at a depth equal to the thickness of the fold.

Each fold is taken in the vertical plane while the subject is standing, except for the subscapular, which is picked up on a slight slant running laterally in the natural fold of the skin.

The technique of measurement is repeated completely for each site before going on to the next site. This includes regrasping the skinfold. Whenever there is a difference greater than 0.5 millimeters, a third measurement is necessary. The mean of the two closest readings represents the value for the site being measured.

The anatomical landmarks for the skinfold sites are as follows:

Subscapula: The bottom point of the shoulder blade (scapula).

Thigh: The front side of the thigh midway between the hip and knee.

Triceps: The back of the upper arm midway between the shoulder and elbow joints.

Suprailiac: Just above the top of the hip bone (crest of the ilium) at the middle of the side of the body.

Scale:	Men	Women
Excellent	< 15%	15-19%
Good	15-19%	19-22%
Average	20-22%	23-25%
Fair	23-24%	26-29%
Poor	> 25%	> 29%

APPENDIX I. WELLNESS PROGRAM FEEDBACK FORM

WELLNESS PROGRAM FEEDBACK FORM

(No Names Please)

Date_____

1. What was your presentation or function with the group(s)?
_____2. Did you see anything that may have affected the participants' attitude toward wellness (health promotion)? _____
Please explain briefly _____

3. Did you see anything that may have affected the participants' working relationship:

Yes or No

Please Explain Briefly:

a. with each other	_____	_____
b. with students	_____	_____
c. with parents	_____	_____
d. with administrators	_____	_____
e. as professionals	_____	_____
f. with the work related tasks they daily perform	_____	_____

4. Did you observe any positive or negative behaviors or comments related to healthy lifestyles? _____ Please explain briefly

5. Was the group:

Yes

No

Comments

Enthusiastic	_____	_____	_____
Inquisitive	_____	_____	_____
Energetic	_____	_____	_____
Unmotivated	_____	_____	_____
Relaxed	_____	_____	_____
Friendly	_____	_____	_____
Unconcerned	_____	_____	_____

6. Other observations: _____

APPENDIX J. CONSENT FORM FOR PRE, POST, AND POST II TESTING

CONSENT FOR PRE, POST, AND POST II TESTING

I understand that the Trait-Anxiety Subscale of the State Trait-Anxiety Inventory, the General Well-Being Schedule, the Brayfield and Rothe Job Satisfaction Index, and the three physiological measures (Resting Heart Rate, Resting Blood Pressure, and Percent Body Fat) will be used in a research project that will test the effectiveness of a wellness program.

I understand that all information will be recorded only by participant code number. No names will be used and no one except the independent tester will have access to participant's names. Names, with code numbers, will not be released to anyone including the building principal.

I have been requested not to share any of my experiences with members of the other group.

I AGREE TO PARTICIPATE IN THIS STUDY.

Participant's Signature

Date

APPENDIX K. RELEVANT ENTRIES DOCUMENTED FROM
THE WELLNESS STUDY DAILY LOG

RELEVANT ENTRIES DOCUMENTED FROM THE
WELLNESS STUDY DAILY LOG

FIRST RUN OF THE WELLNESS PROGRAM (Sept. 23 - Dec. 17, 1985)

- Sept. 17 Pretest day
Overheard many conversations in relation to wellness, skinfold testing, and exercise (some of these conversations included members of the control group).
- Sept. 21 Chesapeake General Hospital's Wellness Day activities were observed on their building grounds. This activity was publicized on the radio, in the press and in the school system's information bulletin.
- Sept. 24 Aerobex exercise area too small - moved to cafetorium. This made the sessions visible to all including Control Group participants. Kindergarten and 2nd Grade Teacher Inservice - no treatment for five Group 1 participants.
- Sept. 27 Hurricane Gloria - aerobex canceled.
- Oct. 9 Play presented by IRHS Drama Club for entire student body that involved fitness - exercise and eating properly were the main themes. All teachers (experimental and control) viewed the play with their classes.
- Nov. 1 Wellness Tee-Shirts given to Group 1 participants.
- Nov. 28 Thanksgiving holiday - no aerobex.

SECOND RUN OF THE WELLNESS PROGRAM (Jan. 6 - March 31, 1986)

- Jan. 7 Conflict with members of Group 1 who want to continue with aerobex during Group 2's treatment phase. Solution worked out with aerobex instructor.
- Jan. 18 Article in local newspaper on Teachers and Wellness that included coverage of exercise programs in school buildings for staff personnel after the regular school day ends.
- Feb. 19 "In Search of Wellness" seminar held in Norfolk and advertised in the newspaper and flyers available to participants.

March 4 Entire faculty given questionnaire developed by school system that related to their perceptions about the effectiveness of the school. Statements on this questionnaire (77 questions) were very similar to those asked on the Work Relationship Survey.

**APPENDIX L. RELEVANT ENTRIES DOCUMENTED FROM THE
WELLNESS PROGRAM FEEDBACK FORM**

RELEVANT ENTRIES DOCUMENTED FROM THE WELLNESS
PROGRAM FEEDBACK FORM

FIRST RUN OF THE WELLNESS PROGRAM (Sept. 23 - Dec. 17, 1985)

- Sept. 17 Blood Pressure Tester
"Participants delighted for a 5 minute break."
- Sept. 17 Skinfold Tester
"People mentioned recent weight loss."
- Sept. 24 Aerobex
"Participants enjoyed it."
- Oct. 3 Aerobex
"Feel they are improving each time."
- Oct. 8 Stress Management Seminar
"Due to lack of time...interaction was restricted."
- Oct. 21 Nutrition Seminar
"Could have used more time."
- Oct. 22 Aerobex
"Participants asked many questions."
- Oct. 31 Aerobex
"Class seemed anxious to do well."
- Nov. 6 Wellness Seminar
"Three or four participants stayed to discuss further."
- Dec. 3 Exercise and Weight Control Seminar
"Discussed teaching profession as sedentary but fatiguing."
- Dec. 17 Posttest Tester
"They're still interested, but were glad to finish the posttest."

SECOND RUN OF THE WELLNESS PROGRAM (Jan. 6 - March 31, 1986)

- Jan. 9 Aerobex
"Many participants came up afterwards to tell me the class was good and that they enjoyed themselves."
- Feb. 12 Nutrition Seminar
"Very positive and receptive to making changes."

- Feb. 18 Exercise and Weight Control Seminar
 "Participants stated they needed more information."
- Feb. 27 Aerobex
 "Snowing outside - people seemed a little
 anxious about going home."
- March 4 Aerobex
 "Group able to do exercises."
- March 12 Heart Seminar
 "Environment (classroom) needs to be less
 congested ; a conference room would be more
 conducive for learning. Morning session
 preferable."

APPENDIX M. WELLNESS PROGRAM FOLLOW-UP SURVEY

WELLNESS PROGRAM FOLLOW-UP SURVEY

1. What did you think of the wellness program?
2. Was the wellness program vigorous enough?
3. Was the wellness program too difficult?
4. What problems did you encounter with the wellness program?
5. Would you have changed anything (format, procedures, time-line, etc.) in the wellness program?
6. Do you feel that your involvement in the wellness program changed you in any way?
7. Do you have any other comments you wish to share about your experiences in relation to this study?

VITA

VITA

NAME: Glenn L. Koonce

Glenn L. Koonce

DATE OF BIRTH: August 18, 1949

PLACE OF BIRTH: Portsmouth, Virginia

HIGH SCHOOL GRADUATION: Great Bridge High School
Chesapeake, Virginia
June, 1967

MILITARY SERVICE:

U. S. Army 1969-1971 (Infantry Sgt.), 1st Air Cavalry Division (Airmobile); Leadership School; NCO Academy, Candidate Brigade Football; Ranger School; Infantry Training Cadre; Republic of Vietnam 1970-1971; Cambodian Thrust 1970; Bronze Star Medal with Oak Leaf Cluster; Army Commendation Medal with Oak Leaf Cluster and V for Heroism; Air Medal with Oak Leaf Cluster; Combat Infantryman's Badge; Vietnam Campaign Medal; Vietnam Service Medal; National Defense Service Medal; Good Conduct Medal; Meritorious and Presidential Unit Awards; Hand-to-Hand Combat Award; Honorable Discharge.

FORMAL COLLEGE DEGREES:

- A. S. Degree Tidewater Community College: Frederick Campus, Portsmouth, Virginia (Health and Physical Education - Pre-Teacher), 1972.
- B. S. Degree Old Dominion University: Norfolk, Virginia (Health, Physical Education, and Recreation), 1974.
- M. S. Degree Old Dominion University: Norfolk, Virginia (Health and Physical Education/Administration), 1978.
- C. A. G. S. Old Dominion University: Norfolk, Virginia (Educational Administration), 1983.
- C. A. G. S. Virginia Polytechnic Institute and State University: Blacksburg, Virginia (Educational Administration), 1985.

PROFESSIONAL EXPERIENCE

- Western Branch High School, Chesapeake Public Schools, Chesapeake, Virginia (Health and Physical Education Long Term Substitute Teacher, and Assistant Varsity Wrestling Coach), 1975.
- Deep Creek Junior High School, Chesapeake, Virginia (Health and Physical Education Teacher, Head Football Coach, and Athletic Director), 1975-1977.
- Deep Creek High School, Chesapeake, Virginia (Health, Physical Education and Drivers Education Teacher, Head Soccer Coach, Head Gymnastics Coach, Head J. V. Football Coach, Assistant Varsity Football Coach, and Sophomore, Junior, and Senior class sponsor), 1977-1982.
- Tidewater Community College, Chesapeake, Virginia (Health and Fitness Instructor), 1980-1981.
- Chesapeake Public Schools Management Academy (Internship - Oscar Smith High School), 1981.
- Chesapeake Alternative School, Chesapeake, Virginia (Assistant Principal), 1982.
- Deep Creek High School, Chesapeake, Virginia (Assistant Principal), 1982-84.
- Chesapeake Secondary Summer School Program (Principal), 1983.
- Georgetown Elementary School, Chesapeake, Virginia (Principal), 1984-1986.