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THE EFFECT OF CARDIAC REHABILITATION ON
QUALITY OF LIFE, ANXIETY, AND SELF-CARE
IN CORONARY ARTERY DISEASE PATIENTS

by

SUSAN SUSSKIND WILKINSON

THESIS

Presented to the Graduate Faculty of

Incarnate Word College

in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF SCIENCE

INCARNATE WORD COLLEGE

August 1994

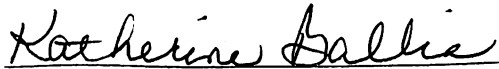
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A Thesis

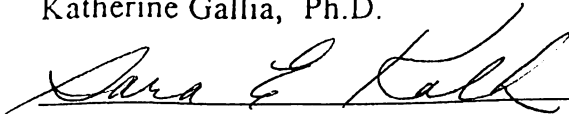
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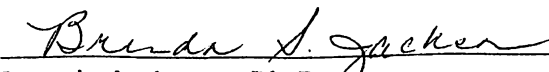
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Acknowledgments

Several individuals have contributed generously of time and experience to this thesis. The final product is enhanced as a result of their assistance and this writer wishes to express her appreciation to each of them.

First and foremost to Dr. Katherine Gallia, who, as thesis chair, has provided the expert direction that has led to the refinement of the questions addressed in this thesis. Your comments, suggestions, and support were invaluable. I am deeply grateful for this direction.

Also to Dr. Sara Kolb and Dr. Brenda Jackson, whose expertise as members of the committee, have, with their reviews, made contributions that have resulted in a more professional and complete study.

To Dr. Carol Clements of the University of South Alabama, who provided an expert statistical analysis of the data collected for this study.

To Dr. Leslie Mayrand, Chairman of the Department of Nursing at Angelo State University and supportive friend, for your encouragement and many helpful comments and suggestions.

To Becca Taylor, R.N. and Ken Harrison, the cardiac rehabilitation staff, for your dedication and commitment to this study.

Finally, I thank my friends and family, who provided support and encouragement throughout this project. Most of all, I thank my husband and children-Joe, Tracy, and Matthew, for all their love and understanding.

Abstract

The Effect of Cardiac Rehabilitation on Quality of Life, Anxiety, and Self-Care in Coronary Artery Disease Patients

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Major lifestyle changes are required after a person experiences an acute coronary event. Rehabilitation programs for coronary artery disease patients are designed to assist the patient with these lifestyle changes by altering the survivor's self-care patterns and improve long-term physical and psychological outcomes. By coordinating education, counseling, and exercise programs, the nurse can help individuals move toward a maximal physiological, psychological, social and vocational recovery. This study was designed to explore the effect of cardiac rehabilitation program participation on anxiety, quality of life, and self-care among coronary artery disease patients. Fifteen patients with coronary artery disease aged 45-81 were included in the study sample. Data was collected before initial participation in the cardiac rehabilitation program and again at the completion of the 12 week program. The State-Trait Anxiety Inventory was used to measure anxiety. Quality of life was measured with the Perceived Quality of Life Scale. The Health Behavior Scale was used to measure performance of suggested self-care behaviors (modify diet, administer medications, manage stress, exercise, and reduce smoking). No significant differences were found between pretest and posttest means on quality of life, State Anxiety, and the self-

care behaviors of diet modification, medication administration, exercise, and smoking reduction. Trait-Anxiety did exhibit a significant decrease between pretest and posttest means, as did the ability of the participants to modify responses to stressful situations. Further research efforts are needed with larger samples to document empirically the influence of cardiac rehabilitation participation on quality of life, anxiety, and self-care among coronary artery disease patients.

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Chapter One

The Effect of Cardiac Rehabilitation on Quality of Life, Anxiety, and Self-Care in Coronary Artery Disease Patients

Introduction

Rehabilitation programs for coronary artery disease patients are designed to alter the survivor's self-care patterns and to improve long-term physical and psychological outcomes. To promote the individual's return to a maximal level of functioning, rehabilitation combines exercise with education, counseling, and socialization (Parchert & Simon, 1988). By coordinating education, counseling, and exercise programs for individuals with cardiovascular disease, the nurse can help individuals move toward a maximal physiological, psychological, social and vocational recovery. The objective of cardiac nurse rehabilitators and cardiac exercise rehabilitation programs should be to maximize the individual's quality of life (Roviaro, Holmes, and Holmstem, 1984).

A review of the research literature on the effectiveness of post myocardial infarction self-care behaviors reveals more studies about the effects of exercise than other self-care behaviors suggested to myocardial infarction survivors. Support for any of these possible explanations can only come from further research (Conn, Taylor, and Casey, 1992). Studies of the effects of cardiac rehabilitation on psychosocial function have had inconsistent results and additional studies of this important aspect of care are clearly indicated (Greenland & Chu, 1988). A majority of these studies have limited their study population to myocardial infarction patients and have excluded other cardiac patients that make up a large portion of cardiac rehabilitation classes. In an attempt to help clarify

these inconsistencies this study will address the following question "What is the effect of cardiac rehabilitation program participation on anxiety, quality of life, and self-care among coronary artery disease patients?"

Conceptual Framework

The Health-Promoting Self-Care System Model (Simmons, 1990) functions as the conceptual framework of this study. In an effort to theoretically integrate perspectives of self-care and health promotion, the Health-Promoting Self-Care System Model is a framework for identifying and explaining sequential patterns among factors that influence the decision-making, performance and outcomes of health-promoting lifestyles (Simmons, 1990). This model is based upon a synthesis of constructs of the Self-Care Deficit Nursing Theory (Orem, 1985) as well as certain factors in the Interaction Model of Client Health Behavior (Cox, 1982) and the Health Promotion Model (Pender, 1987).

The promotion and maintenance of health are recognized by Orem (1985) as outcomes to be achieved through self-care. The Self-Care Deficit Nursing Theory (Orem, 1985) describes and explains person-nurse relationships in health and illness situations. Three modes of helping exist for the delivery of nursing care within Orem's theory of nursing systems. These are self-care, self-care deficit and nursing systems. The self-care construct is applicable to health promotion. It characterizes an individual's self-care system as a set of deliberate actions performed in the interest of life, health and well-being (Orem, 1985). A major conceptualization within the self-care construct is self-care agency which includes cognitive, perceptual, interpersonal and psychomotor capabilities necessary for the successful performance of self-care. Self-care agency is

exercised when an individual decides upon and initiates a self-care system (Orem, 1979). Nursing agency is similar to self-care agency in that its exercise yields an action structure known as a nursing system. A supportive-educative nursing system is relevant to health promotion and initiated with the individual who requires nursing's guidance and teaching in the performance of self-care (Simmons, 1990).

Cox (1982) and Pender (1987) incorporated elements from sociophysiological frameworks of health behavior in the development of explanatory models of health promotion. The Interaction Model of Client Health Behavior (Cox, 1982) describes how elements of client singularity and client-professional interaction produce various health outcomes. Elements of client singularity include the client's background, intrinsic motivation, cognitive appraisal of the health concern, and affective response to the concern. Elements of client-professional interaction which influence health behavior consist of affective support, provision of health information, decisional control and professional-technical competencies. Health outcomes include: utilization of health care services, indicators of health status, severity of health problems, adherence to health behaviors, and satisfaction with health care (Simmons, 1990). Health-promoting behavior within the Interaction Model of Client Health Behavior (Cox, 1982) is defined in a global sense as practices which enhance or sustain a client's well being (Simmons, 1990).

The Health Promotion Model (Pender, 1987) offers an explanation of the health-promoting aspect of lifestyle. The model identifies certain cognitive-perceptual factors as being major determinants of health promoting behavior.

These factors include: importance of health, perceived control of health, perceived self-efficacy, definition of health, perceived health status and perceived benefits of and barriers to health promoting behavior. Additionally, "modifying factors: biological characteristics, situational factors, interpersonal influences and behavioral factors are proposed as influencing health-promoting behavior by affecting the cognitive-perceptual processes" (Simmons, 1990, p.1163).

The manner in which nursing is linked to the attitudinal and behavioral patterns of health of individuals is presented by Simmons (1990) as the Health Promoting Self-Care System Model. Two assumptions underlying the Health-Promoting Self-Care System Model are:

1. Individuals are capable of developing the knowledge, attitudes and skills necessary for for deciding upon and performing health-promoting behaviors.
2. Due to the value of self-care in health promotion, nursing practice is directed toward fostering self-responsibility in the acquisition and maintenance of health-promoting behaviors (Simmons, 1990, p.1164).

The Health-Promoting Self-Care System Model is a framework for identifying and explaining sequential patterns among variables which influence the decision-making, performance and outcomes of health-promoting lifestyles (Simmons, 1990). Health-promoting self-care is defined by Simmons (1990) as a set of behaviors performed by individuals in the enhancement and maintenance of health and quality of life.

Both Orem (1985) and Cox (1982) delineated nursing's role in health promotion. Orem's conceptualization of a supportive-educative nursing system is consistent with elements of client-professional interaction proposed by Cox. The elements that comprise the supportive-educative nursing system include: health information, affective support, advocacy in client choices, and technical

intervention when necessary (e.g. vital sign assessment before and after exercise). An important focus in the Health-Promoting Self-Care System Model involves the health outcomes that arise from and impact health-promoting self-care. Some of the health outcome indicators are: health status indicators, adherence to health-promoting self-care, and satisfaction with health-promoting self-care (Simmons, 1990). According to Simmons (1990), the Health-Promoting Self-Care System Model is intended to conceptually integrate self-care and individual health promotion perspectives in order to explain more precisely patterns of health-promoting lifestyles in diverse populations and to ultimately influence the quality of living for all persons across the lifespan.

The intervention for this study is based on the Health-Promoting Self-Care System Model (figure 1, p.14). Orem (1985) states that rehabilitation is accepted as a form of preventive health care that seeks health maintenance and promotion by reducing dysfunctional states. Rehabilitation usually accompanies secondary prevention involving early diagnosis and treatment of emerging health disorders. In applying Orem's self-care theory to cardiac rehabilitation Campuzano (1982) states that the nurse's role initially focuses on the identification of those activities of self care, called therapeutic self-care demand, in which the client needs to engage. Those activities typically include diet instruction, medication, exercise, smoking reduction, and stress modification. The nurse must then assess the ability of the client to engage in these activities, determining the client's self-care agency. Interventions are planned by the nurse with the goal of increasing the agency of the client to meet the therapeutic self-care demand.

Health-Promoting Self-Care System Model

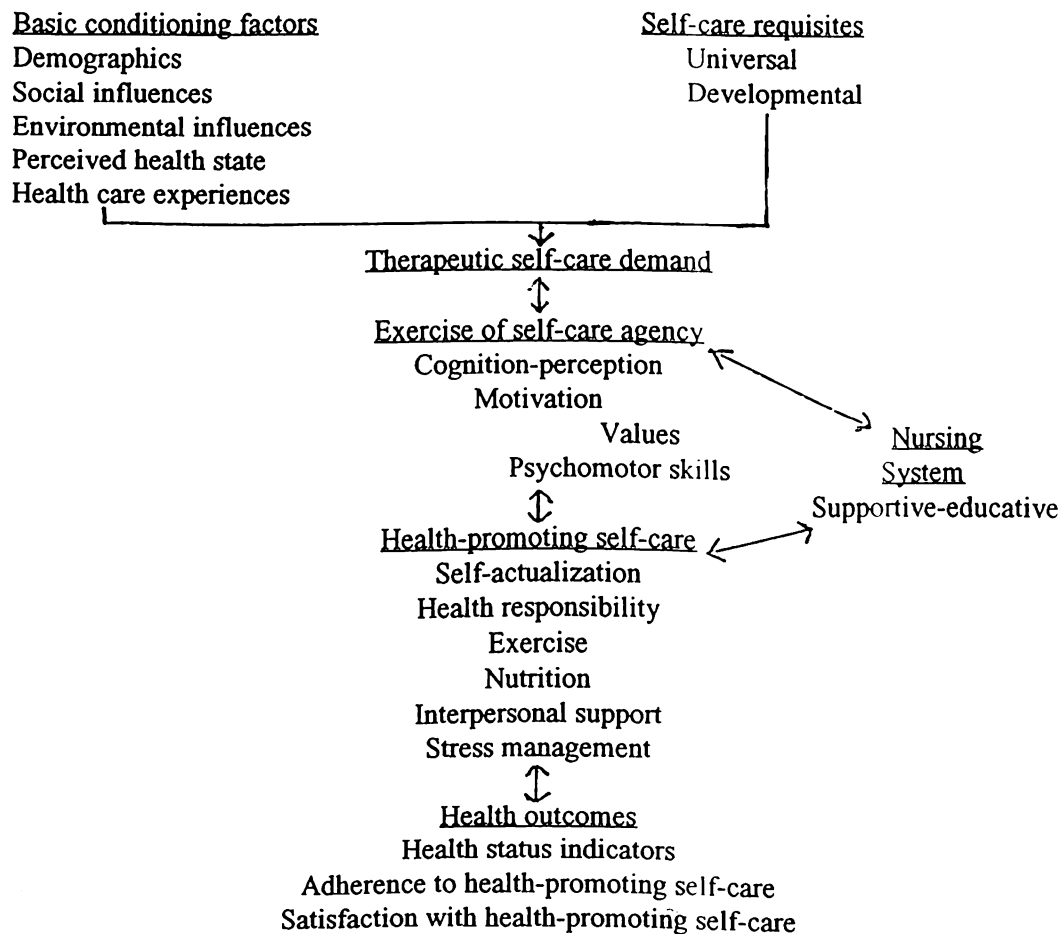


Figure 1: From "The Health-Promoting Self-Care System Model: Directions for nursing research and practice" by S. J. Simmons, 1990, *Journal of Advanced Nursing*, 15, 1162-1166.

According to Campuzano (1982), knowledge is an underlying factor in the ability of the client to meet the criteria identified as therapeutic self-care demand. Self-care education should promote the independent functioning of the client (Levin, 1978).

Wellness motivation is defined as a "dynamic process of intention formation of new and positive health patterns" (Fleury, 1993, p.134). Emotional support is provided by both the cardiac rehabilitation staff and fellow participants throughout the rehabilitation process. Emotionally supportive behaviors assist patients in managing the many physical and emotional changes experienced after a cardiac event (Fleury, 1993). Motivation to initiate and sustain cardiovascular health behaviors can be enhanced through mutual goal setting, continued discussion of strategies for risk modification, and promoting individual confidence in the ability to manage behavioral change. Support from rehabilitation staff includes the provision of relevant information as well as consistent acknowledgment and encouragement of individual progress in meeting risk reduction goals (Fleury, 1993).

It is within the nursing role to initiate and maintain programs for psychological and physical rehabilitation of the cardiac patient. Outpatient programs that continue rehabilitation should emphasize physical training and lifestyle management of cardiovascular risk factors, which are accomplished through education and behavioral modification techniques. The program goal is for the person with cardiovascular disease to achieve the highest level of wellness possible (Guzzetta & Dossey, 1992). The final goal is renewed confidence which will improve perceived quality of life. Once the program is developed, the nurse

is interested in whether it is effective. The purpose of this study is to determine the effect of cardiac rehabilitation on quality of life, anxiety, and self-care in coronary artery disease patients.

Purpose of Study

The purpose of this study was to examine the effect of participation in a supervised outpatient cardiac rehabilitation program on anxiety, quality of life, and the performance of the suggested self-care behaviors of exercise, diet, medication, smoking cessation, and stress modification. This study examined the following question "What is the effect of cardiac rehabilitation program participation on anxiety, quality of life, and self-care among coronary artery disease patients?"

Hypotheses

The following hypotheses were formulated and tested:

1. Coronary artery disease patients will experience an improvement in perceived quality of life after participation in a cardiac rehabilitation program.
2. Coronary artery disease patients will experience a decrease in anxiety after participation in a cardiac rehabilitation program.
3. Coronary artery disease patients will experience an improvement in self-care behaviors after participation in a cardiac rehabilitation program.

Operational Definitions

1. Coronary artery disease: For the purposes of this study, patients with coronary artery disease are those patients whose disease is documented either by clinical history, electrocardiogram and enzyme evidence of myocardial infarction, or angiographic findings with subsequent coronary bypass surgery or angioplasty.
2. Anxiety: Operationally defined as scores on the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970). State anxiety is defined as a transitory emotional state or condition of individuals characterized by subjective,

consciously perceived feelings of tension, apprehension, and heightened autonomic nervous system activity. State anxiety is situation specific and may vary in intensity and fluctuate over time. Trait anxiety refers to relatively stable individual differences in anxiety proneness (Spielberger et al., 1970).

3. Quality of life: Operationally defined as scores on the Perceived Quality of Life Scale (Patrick, Danis, & Southerland, 1988). The Perceived Quality of Life Scale assesses satisfaction with major categories of fundamental life needs, including physical health and activity, self-care ability, thinking ability, communication, social relationships and support, retirement or occupation, leisure activity, sexual activity, income, life meaning, and variety in life.

4. Self care behaviors: Operationally defined as scores on the Health Behavior Scale (Miller, Wikoff, McMahon, Garrett, & Johnson, 1982). The Health Behavior Scale measures the extent to which persons with cardiac disease perform the suggested health care behaviors of diet, medication, exercise, smoking reduction, and stress modification.

5. Cardiac rehabilitation: The process by which patients with cardiac disease are restored to their optimal physical, medical, psychological, social, emotional, vocational, and economic status. Cardiac rehabilitation for the purpose of this study is a 12 week period of supervised and monitored exercise therapy combined with education, counseling, and socialization. Education includes classes on medications, diet, smoking cessation, and stress modification.

Assumptions

The basic assumption of this study was that the presence of coronary artery disease is a major life event that will have continued psychological and physiological impact on the lives of those that it affects. A second assumption was that all participants involved in the study would answer the questionnaires truthfully.

Limitations

1. The main limitation of this study was that due to a nonrandom, nonexperimental design, in combination with a small convenience sample, the results will only be applicable to the population under study. Therefore, the scope of the study and generalizations that can be made are restricted.
2. Due to the variation in educational content and approach of individual cardiac rehabilitation programs, findings cannot be generalized to all cardiac rehabilitation patients.
3. Confounding variables, those which cannot be controlled for, might include the influence of the pretest on the posttest.
4. Due to the absence of a control group in this study the effect of the passage of time on the variables being measured cannot be controlled for.

Chapter Two

Review of the Literature

Background

Data published by the American Heart Association (1991) states that of the estimated 1989 U.S. population of about 248 million, over 69 million (more than one in four Americans) suffered some form of cardiovascular disease. In the United States, coronary artery disease has been the single leading cause of death since 1930. However, since 1970, the number of persons dying from coronary artery disease has decreased gradually (U.S. Bureau of the Census, 1986). Individuals in whom coronary artery disease is diagnosed frequently are subjected to invasive procedures such as coronary artery bypass graft surgery or percutaneous transluminal angioplasty. These procedures, however, offer palliative treatment; they do not correct or alter the progression of coronary artery disease. Of those who survive myocardial infarction or other cardiac diseases, a large number will not recover to their full potential due to physiological, psychological, and sociological complications (Parchert & Simon, 1988). The emotional, behavioral, and social impact of coronary artery disease may be more debilitating than commonly known physiological effects (e. g., heart failure, arrhythmias) (Blumenthal & Mau, 1983). Management of the pathologic progression of the disease requires changes in the individual's life style (Robertson & Keller, 1992).

An interdisciplinary team approach has been identified as being effective in facilitating the coronary artery disease client's recovery; cardiac rehabilitation is well suited to such an approach (Daumer & Miller, 1992). Cardiac rehabilitation

is defined as the process by which patients with cardiac disease are restored to their optimal physical, medical, psychological, social, emotional, vocational, and economic status (Erb, Fletcher, & Sheffield, 1979). The goal of cardiac rehabilitation is to return the patient to an optimal level of physiologic, and vocational functioning, as well as to attempt to prevent the progression of underlying disease (Fleury 1991). The objective of cardiac rehabilitation programs should be to maximize the individual's quality of life (Roviaro et al., 1984; Parchert & Simon, 1988).

Phase II cardiac rehabilitation is a period of supervised ambulatory outpatient rehabilitation following discharge from an acute care facility; it extends for approximately 10-12 weeks after myocardial infarction, coronary artery bypass surgery or another cardiac event. This phase combines exercise therapy with education, counseling, and socialization to promote the individual's return to a maximum level of functioning. The prescribed regimen of physical exercise is primarily intended to improve functional work capacity and secondarily intended to increase the patient's confidence and well-being (Greenland & Chu, 1988). Other interventions may include psychological counseling, dietary instruction, vocational counseling, and group support meetings. Individual cardiac rehabilitation programs vary in their content and approach, with little validation as to which type of program is more effective in promoting patients' psychosocial functioning or quality of life (Ott et al., 1983).

The combination of the variables of quality of life, anxiety, and self-care behaviors in patients with cardiac disease will be studied because investigators have suggested that psychological benefits accompany the physiologic benefits of

exercise (Packa et al., 1989). Some psychological benefits include decreased anxiety and depression, enhanced confidence and self-esteem, and a general sense of well-being. Such changes could have a direct impact on the individual's perception of his or her quality of life and performance of self-care behaviors.

Quality of life

Meeberg (1993) states that the aim of health promotion is to improve quality of life. She continues that the concept of quality of life has gained attention in health care because of the increasing realization that the well-being of the patient is as important a consideration in treatment as are cure and sustainment of life. Pope and Tarlov, (1991) agree proposing that the purpose of health promotion is not only to extend life but also to improve the quality of life and to extend active life free of disability. Meeberg defines quality of life as "a feeling of overall life satisfaction, as determined by the mentally alert individual whose life is being evaluated" (1993, p.37). Oldridge (1986) defines quality of life as "the sum of satisfactions that make a person's life worthwhile, or in practical terms, how a person feels and functions in daily life"(p.55). He states that to be consistent with the World Health Organization concept of rehabilitation, the focus of programs should be on increasing patients' self-responsibility so that they may regain an active, productive life. This would lead to an improvement in their own quality of life.

Because of overemphasis on curative and life-extending medicine, Callahan (1993) believes rehabilitation has played a secondary role in the American health care system. He proposes the following goal for the health care system: "to achieve the highest level of public health possible within the constraints of

available resources, and to achieve for the individual the highest quality of life possible within the boundaries of human mortality and other societal needs" (Callahan, 1993, p.103). Callahan (1993) continues stating that there is no doubt that rehabilitation can help to extend some lives, but this is not its principle purpose. Rehabilitation focuses on quality of life rather than longevity; thus, rehabilitation adds not just "years to life, but life to years" (Callahan, 1993, p.103).

Quality of life is relevant to all stages of the disabling process. Gradual deterioration in function, as is present in chronic diseases such as cardiovascular disease, must be looked at in terms of how quality of life is affected. Quality of life for persons with disabling conditions can be enhanced or at least maintained even if functioning cannot be improved (Pope & Tarlov, 1991).

Cardiovascular disease involves physical, personal, and social responses that often disrupt life ; because of this it is important to describe the quality of life in populations that are attempting to adjust to the changes imposed by cardiovascular disease (Packa et al., 1989). As mortality from myocardial infarction declines, concern with efforts to improve the quality of life among myocardial infarction survivors becomes more important (Radtke, 1989). In recent years, quality of life has become a major concern in planning and implementing therapeutic programs (Ferrans & Powers, 1992). According to Ott et al. (1983), the effects of cardiac rehabilitation on the client's quality of life have not been thoroughly investigated in the past because of the lack of appropriate instruments and methodological difficulties. Although quality of life among persons with other chronic illnesses is often studied, there is little

empirical evidence about quality of life among myocardial infarction survivors. According to Bergner (1989) in a review of existing research, the research that has claimed to study quality of life among myocardial infarction survivors has often studied variables that are probably related to quality of life without actually measuring quality of life. Wilhelmsen, Sanne, & Elmfeldt (1975), found that there was a possibility that exercise rehabilitation may have only minimal effects on morbidity and mortality but suggested that the value of training programs after myocardial infarction may effect the quality of life more than longevity.

Recently, with the validation of instruments measuring quality of life, studies have been done relating cardiac rehabilitation and its effects on the quality of life of cardiac patients. A study conducted with 94 myocardial infarction survivors by Conn, Taylor, & Wiman (1991) indicated that depression scores were important predictors of quality of life 1 to 2 years after initial infarction. Conn et al. (1991), found that anxiety scores did not predict quality of life for their sample. Increased age was associated with lower quality of life in a study of 197 older adults interviewed 1 to 2 years after their first myocardial infarction (Conn, Taylor, & Abele, 1991). With the same sample (Conn, Taylor, & Casey, 1992), a significant association was found between rehabilitation participation and quality of life. They concluded that their findings suggested that participation in a cardiac rehabilitation program is a worthwhile intervention that facilitates recovery from myocardial infarction.

No significant differences were found between 21 outpatient and 26 home based rehabilitation clients in psychosocial functioning or life satisfaction in a study by Daumer & Miller (1992). In the same study, psychosocial functioning

and life satisfaction were found to be strongly related. The authors suggest that further research is needed to document empirically the influence of cardiac rehabilitation participation on the client's quality of life. Pope and Tarlov (1991) state that a greater emphasis on measures of quality of life in evaluations of the effectiveness of rehabilitation may stimulate greater awareness and understanding of the problem.

Anxiety

Although there have been few quantitative studies, the psychological benefits of exercise programs have been noted anecdotally by virtually every investigator (Ott et al., 1983). The psychological and social problems resulting from myocardial infarction began to be identified in the late 1960's (Doehrmann, 1977). According to Greenland & Chu (1988), studies of the effects of cardiac rehabilitation on psychosocial function have inconsistent results. Depression and anxiety are frequently reported in cardiac patients (Doehrmann, 1977; Stern & Cleary, 1981; Conn, Taylor, & Wiman, 1991). In a study involving 80 males and 21 females with coronary artery disease, Schuster & Waldron (1991) found that anxiety is a problem in both sexes, with females reportedly being significantly more anxious than males. They continue that routine assessments of patients entering cardiac rehabilitation should include anxiety, in addition to physical status, to help plan interventions to deal with anxiety. Patient emotional outcomes also need to be assessed on completion of rehabilitation for outcome evaluation (Schuster & Waldron, 1991). This is an important area for nursing research because the interventions that nurses can provide are effective in altering

anxiety and depression among myocardial infarction survivors (Burgess et al., 1987).

Self-care

Cardiac rehabilitation programs commonly offer education about the heart, causes of myocardial infarction, cardiac risk factors, and other general teaching designed to reassure patients with cardiac disease by making them more knowledgeable about their heart condition (Greenland & Chu, 1988). The cardiac therapeutic regimen requires complex behavioral changes of long duration that are difficult to achieve (Conn, Taylor, & Abele, 1991). Since lifestyle has been linked to the incidence of heart disease, it has been thought that increasing the patient's knowledge would result in a change in life-style and therefore a decrease in risk for further cardiovascular disease (Raleigh & Odtohan, 1987). The behavioral lifestyle changes that will favorably affect prognosis of the coronary artery disease client include: (1) modification of risk factors such as smoking, dietary habits, and excess body weight; and (2) the development of a habit of regular exercise (Sivarajun et al., 1983). It is within the nursing role to administer programs for psychological and physical rehabilitation. The role of nursing is to assist the individual to maintain or initiate self-care (Raleigh & Odtohan, 1987).

According to Greenland and Chu (1988), few studies concerning this type of teaching after myocardial infarction have used an adequate study design to allow for comparison of a special intervention against usual care. Ethical considerations must be considered. Because of the potential benefits of cardiac teaching to promote a healthier lifestyle, it may be unethical to deny the teaching

program to any cardiac patient. In some studies, special teaching or counseling programs have produced modest improvements in psychosocial outcome compared to usual care after myocardial infarction. In other studies no benefit has been shown. The evidence that teaching, counseling, or both, are helpful in cardiac programs after infarction is not conclusive (Greenland & Chu, 1988). According to Greenland & Chu (1988), randomized trials in patients with other types of coronary disease is minimal or lacking, and use of cardiac rehabilitation is, therefore, empiric.

In a study by Scalzi, Burke, & Greenland (1980) using an experimental group of 19 patients and a control group of 13 patients, it was reported that continued instruction during the postdischarge phase appeared to improve knowledge and "reported" compliance in the following areas: medications, progression of physical activity, resumption of sexual activity, weight reduction, and treatment and reporting of chest pain and shortness of breath. A nurse rehabilitator was found to be effective in increasing the return to work rate, and decreasing smoking in patients with acute myocardial infarction. These outcomes were thought to be due to the nurse rehabilitator's efforts in increasing patient knowledge of heart disease and individual counseling (Pozen et al., 1977).

In a study of 10 participants in a supervised outpatient cardiac rehabilitation program, it was reported that the program affected their efforts to perform the suggested self-care behaviors (Frenn, Borgteson, Lee, & Simandl, 1989). Roviario, Holmes, and Holmstein (1984), reported greater compliance with treatment recommendations by 28 post myocardial infarction and coronary bypass patients concerning medication, physical exertion, and weight at the end of

rehabilitation treatment than 20 patients assigned to routine care. Rehabilitation participation was significantly associated with performance of exercise, diet, and medication self-care in 197 myocardial infarction patients one to two years after their initial infarction (Conn, Taylor, & Casey, 1992). In opposition to these studies Sivarajan et al. (1983), states that looking at overall behavioral changes, their teaching and counseling program on risk factors demonstrated only limited effectiveness for their sample of 258 myocardial infarction patients.

The combination of the variables of quality of life, anxiety, and self-care behaviors in patients with cardiac disease are an important area for nursing research. Anxiety may contribute to the lack of performance of the recommended self-care behaviors. If anxiety is related to the belief that further health problems are not preventable, people may not attempt the recommended self-care activities (Miller, Wikoff, McMahon, Garrett, & Johnson, 1982). Conn, Taylor, & Wiman (1991) state that many people experience anxiety and depression long after their myocardial infarction. Anxiety or depression is likely to decrease quality of life and probably interferes with performance of the suggested self-care behaviors among myocardial infarction survivors. Their findings indicated that depression scores were more important predictors of both quality of life and self care behaviors than anxiety scores. This was an unexpected finding and they state more studies are needed to clarify these findings.

Chapter Three

Methodology

Design

This study utilized a repeated measure (non-independent comparison) quasi-experimental design that is descriptive in nature. Three self-administered questionnaires were given to participants in a monitored phase II cardiac rehabilitation program located at the Health Club of San Angelo. The three tools were utilized to measure the dependent variables of anxiety, quality of life, and performance of suggested self-care behaviors before and after participation in the monitored phase II cardiac rehabilitation program. The pre-cardiac rehabilitation administration of the instruments (filling out questionnaires) was conducted prior to the initial rehabilitation session that the patient attended. The patients were given the three tools at their cardiac rehabilitation orientation session and were asked to bring them back when they returned for their first rehabilitation session. Post-cardiac rehabilitation administration of instruments (filling out questionnaires) was conducted during the last week of the 12 week cardiac rehabilitation program. The participants were given the tools upon completion of their 34th session and asked to return them by their last session (36th). The same research nurse conducted all data collection in the study.

Setting

The setting for the intervention in this study was a health and wellness center affiliated with a not-for-profit community hospital located in a southwestern city. The self-administered questionnaires were given to the subjects to be completed in the privacy of their homes.

Subjects and sampling

A non-random convenience sample was obtained from the phase II cardiac rehabilitation program participants at the Health Club of San Angelo. The sample of 15 participants aged 45 to 81 consisted of 8 men and 7 women. Potential subjects were identified when referred by a physician to the cardiac rehabilitation phase II program. Criteria for subject selection included patients who either had experienced a myocardial infarction or had undergone coronary artery bypass surgery or angioplasty and were participants in a monitored phase II cardiac rehabilitation program for the first time. Patients with psychiatric disorders, a history of drug abuse requiring hospitalization, cerebral, renal, or pulmonary complications were excluded from the sample. All subjects understood English and possessed the ability to read.

The first 15-20 clients who met the eligibility criteria and consented to participate when the study began comprised the sample. Eighteen patients were initially pretested. One patient experienced a second myocardial infarction at his home and died during his second week of rehabilitation. A second patient was hospitalized for gastrointestinal problems during her eighth week of rehabilitation and chose not to return to the program after her discharge. A third patient continued to have symptoms post angioplasty and was admitted for coronary artery bypass surgery. The remaining fifteen patients were post-tested comprising the final sample.

The main source of possible sampling error may be due to the small non-random convenience sample from one cardiac rehabilitation center. This sample may not be representative of the target population of patients participating in

cardiac rehabilitation. The percentage of women, men, post acute myocardial infarction, coronary artery bypass, and angioplasty patients in this sample may differ from that in the cardiac rehabilitation population in general.

Protection of Human Subjects

Approval for the research study was obtained from the Incarnate Word College Institutional Review Board. Prior to the collection of any data, permission to implement the study was also obtained from the graduate school of Incarnate Word College.

The study and the researcher was in no way connected to, or responsible for, the design of the rehabilitation program which was conducted solely by the Health Club of San Angelo. The hospital involved did not have an institutional review board, therefore permission to administer this study in its facility was obtained from the hospital administration on behalf of the physicians in the medicine division.

Written informed consent was obtained from all participants prior to joining the study. The subjects were told that their participation was confidential and voluntary; that no information that they gave would be shared with anyone other than those conducting the research; that their participation would have no effect on any services that they were receiving; and that they could withdraw at any time. This information was included in the consent form (Appendix A). Every effort was made to minimize any discomfort on the part of the respondent in order to make the experience non-stressful to them.

The rehabilitation program utilized in this study was part of the customary care given to the patients involved. There was no added risk beyond that which

was normal for cardiac rehabilitation as a result of the addition of questionnaires given in this study.

Subjects were assigned a number. All data collected during the study was reported under the number for confidentiality. The subjects identity was known only by the researcher.

Cardiac Rehabilitation Intervention

In the cardiac rehabilitation program utilized in this study a detailed explanation of the program and instructions are given to the patient during an initial consultation. Educational material is distributed to the participants in the form of handouts on diet and cholesterol, stress modification, home exercise, taking a pulse, and cardiovascular disease risk factor information throughout the 12 week program (see Appendix B through O). Discussions based on the specific handout material given to the patient are conducted individually during and after the exercise sessions.

Exercise training in this cardiac rehabilitation program consists of a 12 week program of 3 nonconsecutive days per week with a duration of approximately one hour. The patient's ECG is monitored while on such modalities as treadmills, stationary exercise bicycles, arm exercise devices, rowing machines, air-dyne bicycles, and step climbing (usually to a metronome pace). A warm up is done of approximately 5 minutes of light stretching exercises followed by a maximum session of 35 minutes on the various modalities. Subject monitoring continues until the resting heart rate is reestablished. The exercise prescription is determined by the physician from the admission graded exercise test and gradually increased according to target heart

rates (usually 20 -30 beats above resting) and patient response. Patients are asked to grade their perceptions of the exercise difficulty via the Borg scale (Appendix) before any changes are made in the exercise prescription. An achieved MET (metabolic equivalents of a task) level of 5 along with a target heart rate on the various modalities is a goal by the end of the program (climbing a flight of stairs is equal to 3.5 to 4 METs).

A dietician presents special sessions dealing with different aspects of a heart healthy diet each month. Once a week a cardiac prudent recipe is prepared by the dietician for sampling following the exercise sessions. A file is available to the patients with copies of individual recipes that can be taken home.

Instrumentation

Data collection in this study consisted of the use of the following three instruments. Permission to use these instruments was granted by the authors and is included in the appendix (E-G).

1. Quality of life was measured by the Perceived Quality of Life (PQOL) scale (Patrick, Danis, Southerland, & Hong, 1988). The PQOL includes 20 items that assess satisfaction with major categories of fundamental life needs, including physical health and activity, self-care ability, thinking ability, communication, social relationships and support, retirement or occupation, leisure activity, sexual activity, income, life meaning, and variety in life. The questions require the respondent to assess how satisfied he/she is with different aspects of his/her health and life. Respondents rate their satisfaction on a scale ranging from 0 to 10 with 0 indicating extremely dissatisfied and 10 is very satisfied. An average of the summated ratings constitute the PQOL score. The PQOL was designed for

use with persons who have experienced a major illness and with subjects of varying ages. Because of its past use with myocardial infarction patients (Conn, Taylor, & Wiman, 1991; Conn, Taylor, & Casey, 1992) it was felt to be appropriate for this study. Patrick et al. reported adequate internal consistency reliability (Cronbach's $\alpha = 0.88$) for the PQOL. Patrick et al. also state that the low to moderate correlation between perceived life quality and other health status domains in their study can be viewed as preliminary evidence of the discriminant or construct validity of the PQOL scale. The correlation between the scores on the Psychological General Well-Being Schedule (PGWB) and the PQOL were ($R = 0.54$, $p = 0.001$).

Although the PQOL is a relatively new instrument and the author is in the process of analyzing the data and writing a report on the psychometric properties of the instrument, it was felt that the individual questions in the instrument correlated well with the concept of health promoting self-care used as the conceptual framework for this study.

2. Performance of recommended self-care behaviors was measured by the Health Behavior Scale (HBS). The HBS was developed specifically for measuring the extent to which persons with cardiac disease perform the suggested self-care behaviors (Miller, Wikoff, McMahon, Garrett, & Johnson, 1982). The 20 item scale includes 4 items for each suggested self-care behavior (diet, medication, exercise, smoking reduction, and stress modification). For each part, questions address self-care behavior at home, at work, during social activities, and during recreation. The HBS is a five point Likert scale with responses ranging from likely(5) to unlikely(1). Reported Cronbach's alpha reliabilities for

the different self-care behaviors range from .82 to .95 (Miller, Wikoff, Garrett, McMahon, & Smith, 1990). Each self-care behavior was analyzed separately because the actions required to enact the suggested behaviors are very different.

3. Anxiety was measured by the State-Trait Anxiety Inventory (Spielberger et al., 1970). State anxiety is defined as a transitory state or condition of individuals characterized by subjective, consciously perceived feelings of tension, apprehension, and heightened autonomic nervous system activity. State anxiety is situation specific. Trait anxiety refers to relatively stable individual differences in anxiety proneness (Spielberger et al., 1970). This instrument consists of 40 self-descriptive statements to which the individual responds on a 4-point scale of intensity. Twenty items measure state anxiety to which respondents report how they feel at that moment. Twenty other items measure trait anxiety and respondents are to report how they generally feel.

The range of possible scores for each scale is 20 to 80 points. Each scale score is derived by adding weighted responses across items. Both scales have a high degree of internal consistency (Cronbach's alpha = .83 to .92). Test-retest reliability of the trait anxiety scale ranges from .73 to .86, while test-retest reliability of the state anxiety scale ranges from .16 to .54. Low test-retest reliability of the state anxiety scale is expected since state anxiety is situation specific and highly transient. Concurrent validity for the trait anxiety scale is evident from the high correlations with the IPAT Anxiety Scale, .75 to .77, and the Taylor Manifest Anxiety Scale, .79 to .83 (Spielberger et al., 1970). Normative values on trait anxiety range from 37.68 to 38.25 among adults.

Data Analysis Procedures

Demographic data from the sample in this study is summarized using descriptive statistics. The data analyzed from the tools in this study was interval level. It is interval level data due to the numerical values of the scores of the tools utilized, the distances between which represent equal distances in the attribute being measured. The data collected and analyzed were the scores from pretests and post-tests of the three tools. The tools utilized in this study measured anxiety, quality of life, and performance of self-care behaviors. The research question dealt with the effect of cardiac rehabilitation program participation on three variables (anxiety, quality of life, & self-care behaviors). After raw scores were calculated, means were determined. A *t*-test was done to compare the means between pre-test and post-test scores. This allowed the evaluation of any differences as a result of cardiac rehabilitation program participation. Each self-care behavior (exercise, diet, medications, stress, and smoking) was analyzed separately because the actions required to enact the suggested behaviors are very different. The *t*-test is used most often to compare the means of two groups. If the two sample means are far enough apart, the *t*-test will yield a significant difference, thus permitting the researcher to conclude that the two populations probably do not have the same mean.

In this study a correlated samples *t*-test, also referred to as a paired *t*-test, was used. This test is appropriate for situations in which the first group, in this case the pretest, is logically tied to scores in the second group (post-test). In this research situation a single group of subjects was measured twice, before and after a common experience (cardiac rehabilitation). The score in the first group was

logically tied to the score in the second group because it was obtained from the same person.

The statistical analysis was conducted on a computer using the Statistical Package for the Social Sciences (SPSS) program. An alpha level of .05 was selected as the level of significance for the *t*-tests.

Chapter Four

Analysis of Data

This chapter presents the findings as they relate to the analysis of the data. The sample is described according to general demographics (Table 1, p.38). The independent variable in this study was the participation in a cardiac rehabilitation program. Because the focus of this study was on the influence of cardiac rehabilitation on the dependent variables of anxiety, quality of life, and self-care behaviors, the results that are presented are limited to the effects on these variables. Findings are listed according to hypotheses.

Description of Sample

The final sample ($N = 15$) included 8 men (53.3%) and 7 women (46.7%). The average age was 64 years ($SD = 9.114$, range 45-81). The reason for admission to cardiac rehabilitation was the diagnosis of some form of coronary artery disease. The majority of the sample had experienced coronary artery bypass graft ($N = 7$, 46.7%). Four (26.7%) had undergone angioplasty procedures and one (6.7%) had both an angioplasty and a myocardial infarction. Three (20.0%) participants in the sample had confirmed myocardial infarctions.

The number of absences by the study participants for the thirty-six session program was calculated. The mean number of absences was 4.2 ($SD = 3.321$, range 0 - 10). Three (20%) of the participants did not miss a single session. The average metabolic equivalents of a task (MET) level achieved by the study participants by the end of the program was 5.165 ($SD = 1.254$, range 3.92 - 8.00).

Table 1. Demographic Characteristics of Sample ($n = 15$)

<u>Characteristic</u>	<u>No.</u>	<u>%</u>
Sex		
Male	8	53.3
Female	7	46.7
Diagnosis		
CABG	7	46.7
MI/AP	1	6.7
AP	4	26.7
MI	3	20.0
Age		
Mean = 64.067		
SD = 9.114		
Range = 45 to 81 yr.		
METs achieved at completion of program		
Mean = 5.165		
SD = 1.254		
Range = 3.9-8		
No. of sessions missed out of 36		
Mean = 4.2		
SD = 3.321		
Range = 0-10		

Findings

The purpose of this study was to examine the effect of participation in a supervised outpatient cardiac rehabilitation program on anxiety, quality of life, and the performance of the suggested self-care behaviors of exercise, diet, medication, smoking cessation, and stress modification. Mean scores pre-cardiac rehabilitation program participation and post-cardiac rehabilitation were calculated for the group. A two-tailed *t*-test for paired samples was performed on the pretest and post-test mean scores.

Hypothesis #1:

Coronary artery disease patients will experience an improvement in perceived quality of life after participation in a cardiac rehabilitation program.

Perceived quality of life was measured by the Perceived Quality of Life (PQOL) scale. The mean score for the pretest was 7.798 (*SD* = 1.342; range, 4.60-9.50). The mean score for the post-test was 7.629 (*SD* = 2.186; range, 2.830-9.850). A *t*-test was performed on the mean scores between the pretest and the post-test, $t(14) = 0.54, p = .599$ (NS). There was no significant difference between pretest and post-test in perceived quality of life. The results of the *t*-test analysis are presented in Table 2 (p.43). Therefore, the hypothesis that coronary artery disease patients will experience an improvement in perceived quality of life after participation in a cardiac rehabilitation program was unsupported by the data collected.

Hypothesis #2:

Coronary artery disease patients will experience a decrease in anxiety after participation in a cardiac rehabilitation program.

Anxiety was measured by the State-Trait Anxiety Inventory. The State Anxiety Inventory was used to measure the participants anxiety as it related to their present condition. The mean score for the pretest was 36.333 ($SD = 14.524$; range, 20-64). The mean score for the post-test was 36.067 ($SD = 13.535$; range, 20-58). A t -test was performed on the mean scores between the pretest and the post-test, $t(14) = 0.13, p = .896$ (NS). There was no significant difference between pretest and post-test in State Anxiety. The results of the t -test analysis are presented in Table 2 (p.43).

The Trait Anxiety Inventory was used to measure general anxiety proneness in the participants. The mean score for the pretest was 38.8667 ($SD = 14.377$; range, 21-65). The mean score for the post-test was 35.533 ($SD = 13.705$; range, 20-60). A t -test was performed on the mean scores between the pretest and the post-test $t(14) = 2.39, p = .032$ ($p < .05$). The t -test shows a significant difference between pretest and post-test in Trait Anxiety. The results of the t -test analysis are presented in Table 2 (p.43).

The hypothesis that coronary artery disease patients will experience a decrease in anxiety after participation in a cardiac rehabilitation program was not supported by the data collected for the State Anxiety Inventory. The hypothesis was supported by the data collected for the Trait Anxiety Inventory.

Hypothesis #3

Coronary artery disease patients will experience an improvement in self-care behaviors after participation in a cardiac rehabilitation program.

Performance of recommended self-care behaviors was measured by the Health Behavior Scale (HBS). The 20 item scale includes 4 items for each

suggested self-care behavior (diet, medication, exercise, smoking reduction, and stress modification). Each self-care behavior was analyzed separately because the actions required to enact the suggested behaviors are very different.

Diet

The mean score for the dietary behaviors pretest was 4.096 ($SD = .638$; range, 3.0-5.0). The mean score for the post-test was 3.993 ($SD = .739$; range, 2.75-5.0). The t -test was performed on the mean scores between the pretest and the post-test $t(14) = .53, p = .603$ (NS). There was no significant difference between pretest and post-test in dietary behaviors. The results of the t -test analysis are presented in Table 2 (p.43).

Medication

The mean scores for the pretest and post-test portion of the medication self-care behavior subtest were both 4.967 ($SD = .129$; range, 4.5-5.0). Because the standard error of the difference was 0, a t -test analysis could not be performed.

Exercise(activity)

The mean score for the exercise(activity) behaviors pretest was 4.234 ($SD = .772$; range, 2.5-5.0). The mean score for the post-test was 4.280 ($SD = .830$; range, 2.63-5.0). A t -test was performed on the mean scores between the pretest and the post-test $t(14) = -.27, p = .795$ (NS). There was no significant difference between pretest and post-test in exercise(activity) behaviors. The results of the t -test analysis are presented in Table 2 (p.43).

Smoking

The mean score for the smoking behavior pretest was 4.5. The mean score for the post-test was 4.38. Because there was only one smoker in this sample the

sum of the caseweights was less than or equal to one, thus the *t*-test analysis could not be performed.

Stress Modification

The mean score for the stress modification behavior pretest was 3.931 (*SD* = 1.021; range, 1.0-5.0). The mean score for the post-test was 3.382 (*SD* = 1.287; range, 1.0-5.0). A *t*-test was performed on the mean scores between the pretest and post-test $t(14) = .047, p = .047 (p < .05)$. The *t*-test shows a significant difference between pretest and post-test in stress modification behavior. The results of the *t*-test analysis are presented in Table 2 (p.43).

The hypothesis that coronary artery disease patients will experience an improvement in self-care behaviors after participation in a cardiac rehabilitation program was not supported by the data collected on diet and exercise behaviors. Due to inadequate caseweights and identical means, the *t*-tests on smoking and medication behaviors could not be performed. There was a significant difference in stress modification behavior between pretest and post-test but in the direction of decreased ability to modify responses to stressful situations. Therefore, the hypothesis that coronary artery disease patients will experience an improvement in self-care behaviors after participation in a cardiac rehabilitation program was unsupported by the data collected.

Table 2. Mean Scores and *T*-Values of Quality of Life, Anxiety, and Recommended Self-Care Behaviors (*N* = 15)

Variable	Pre X	SD	Post X	SD	df	<i>T</i> -Value	Two-Tailed Probability
PQOL	7.79	1.34	7.62	2.18	14	.54	.599
S-Anxiety	36.33	14.52	36.06	13.53	14	.13	.896
T-Anxiety	38.86	14.37	35.53	13.70	14	2.39	.032
Stress	3.93	1.02	3.38	1.28	14	2.17	.047
Medications	4.96	.12	4.96	.12	*	*	*
Exercise(Activity)	4.23	.77	4.28	.83	14	-.27	.795
Smoking	4.50	*	4.38	*	*	*	*
Diet	4.09	.63	3.99	.739	14	.53	.603

* indicates *t*-test analysis could not be performed

Additional Findings

A Pearson Product Moment Correlation Coefficient was performed on the data to see if any relationships existed between various variables. The correlation between the pre PQOL and the post PQOL was .8680 (significant at $p = .000$). This high correlation suggests that the results between the pre and post PQOL were consistent.

The pre PQOL scores correlated highly with the pre State (-.8073) and pre Trait (-.8386) Anxiety Inventory scores (both significant at $p = .000$). The post PQOL correlated highly with the post State (-.7697, $p = .001$) and post Trait (-.8667, $p = .000$) Anxiety Inventory scores as well.

The relationship between pre and post perceived quality of life scores and the various coronary artery disease diagnoses represented in the study sample is depicted in Table 3 (p.46). The only group of patients with an improved perceived quality of life after participation in the cardiac rehabilitation program were those that had undergone angioplasty procedures. It is interesting to note that this group of patients experienced the least drastic change physiologically.

Summary of Findings

Based on the analysis of the data, the findings are summarized in the following statements:

1. The hypothesis that coronary artery disease patients will experience an improvement in perceived quality of life after participation in a cardiac rehabilitation program was not supported by the data collected.
2. The hypothesis that coronary artery disease patients will experience a decrease in anxiety after participation in a cardiac rehabilitation program was not

supported by the data collected for State Anxiety Inventory. The hypothesis was supported by the data collected for Trait Anxiety Inventory.

3. The hypothesis that coronary artery disease patients will experience an improvement in self-care behaviors after participation in a cardiac rehabilitation program was not supported by the data collected.

The statistical analysis did not support for research hypotheses except for trait anxiety.

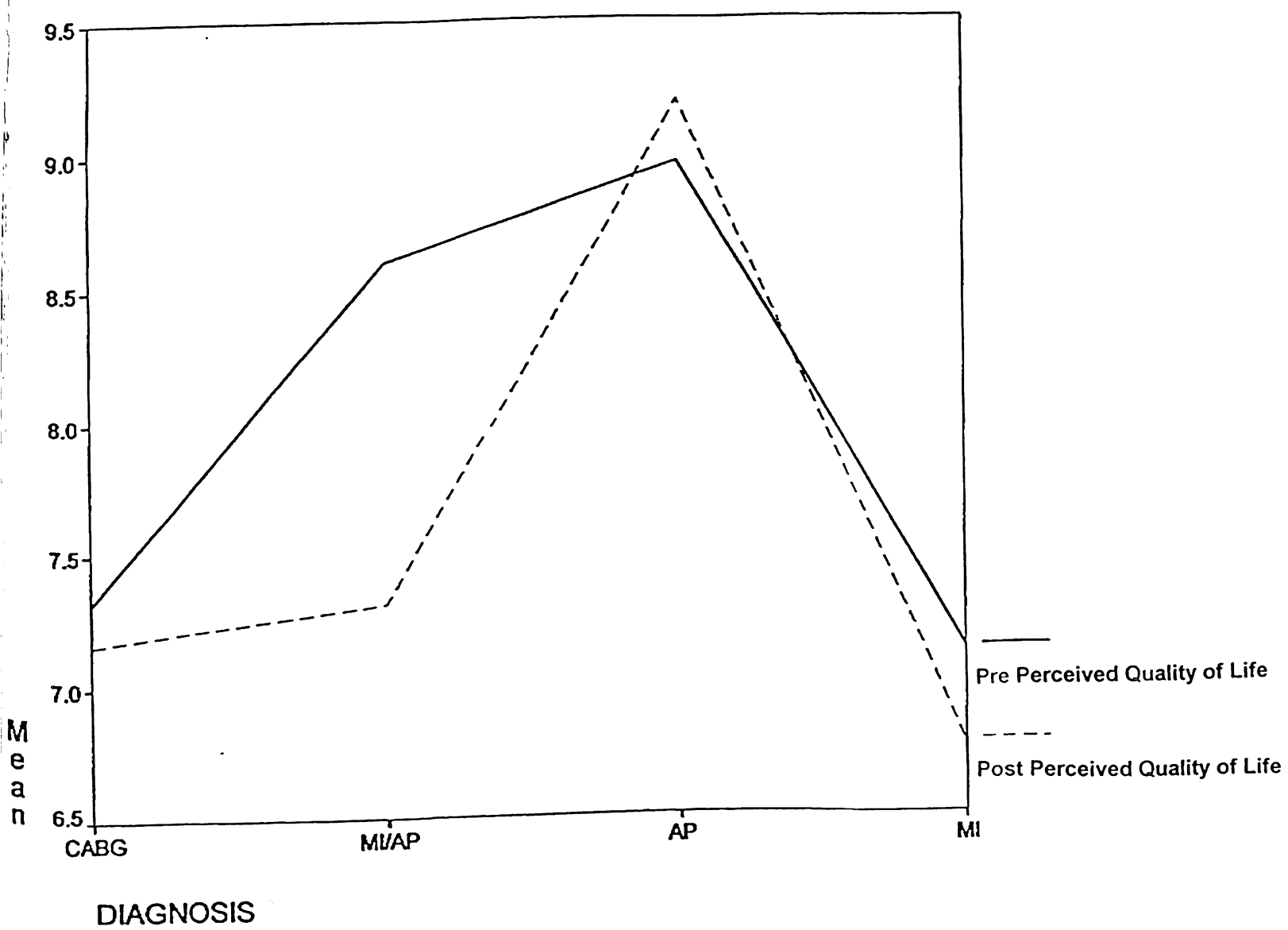


Table 3. Pre and Post PQOL Scores by Diagnosis

Chapter Five

Summary of the Study

Discussion of Findings

This study used the Health-Promoting Self-Care System Model to link attitudinal and behavioral patterns that influence the decision making, performance and outcomes of health promoting lifestyles to participation in a cardiac rehabilitation intervention. The effects of participation in a cardiac rehabilitation program on self-care behaviors, anxiety, and quality of life by coronary artery disease patients was examined.

The effect of cardiac rehabilitation participation on the variables of quality of life, state anxiety, and self-care behaviors was found to be statistically nonsignificant. These findings represent a lack of evidence for either truth or falsity of the hypotheses and may be related to several factors. First, the failure to support the hypotheses may be due to the use of too small of a sample. A second possibility may be that the rehabilitation experience initially may have served to falsely increase client's expectations for functioning related to exercise and self-care behaviors. This could help explain why the mean post scores generally reflected more perceived dysfunction. This supposition is supported by anecdotal remarks made by patients toward the end of the rehabilitation program.

The limited studies conducted regarding measurement of the influence of cardiac rehabilitation program participation on quality of life have offered conflicting findings. Conn, Taylor, & Casey (1992) found a significant association between rehabilitation participation and quality of life. No significant differences were found for life satisfaction between outpatient and home based

rehabilitation in a study by Daumer and Miller (1992). Although there was no significant difference found between the mean scores of the PQOL pretest (7.7980) and the post-test (7.6287) in this sample, it is encouraging to note that the sample in general had a high perception of their quality of life pre and post participation in the cardiac rehabilitation program.

One unexpected and unusual finding in this study was the significant difference between pretest and post-test scores for trait anxiety. The trait anxiety mean score for the sample decreased in the posttest. This is unusual in that trait anxiety refers to relatively stable individual differences in anxiety proneness and usually does not change.

The mean scores for the State Anxiety pretest (36.333) and post-test (36.0667) were only slightly higher than the norms for adults ages 50-69 (males = 34.51, females = 32.20) suggesting that the sample as a whole was not overly anxious about their present health problems before or after rehabilitation participation. The mean scores for the Trait Anxiety pretest (38.8667) and post-test (35.5333) were also only slightly higher than the norms for adults ages 50-69 (males = 33.86, females = 31.79). Again, this suggests that this sample as a whole was not prone to anxiety in general.

As noted by the means of all the self-care behaviors, the subjects had the strongest intention to adhere to their medication regimen. Taking medication is probably easier and less time consuming than exercising, altering diet, managing stress, and reducing smoking. Although the mean scores between pretest and post-test on diet and activity behaviors showed no significant difference, the scores indicated fairly high compliance to the recommended regimen. There was

a significant difference in stress modification behavior between pretest and post-test but in the direction of decreased ability to modify responses to stressful situations. This finding is unfortunate considering the accumulating evidence that coping and stress may have profound physiological as well as psychological consequences.

Conclusions

Based on the limitations and findings in this study, the tentative conclusions for the sample were:

1. Coronary artery disease patients did not experience a significant improvement in perceived quality of life after participation in a cardiac rehabilitation program.
2. Coronary artery disease patients did not experience a significant decrease in State-Anxiety after participation in a cardiac rehabilitation program.
3. Coronary artery disease patients did experience a significant decrease in Trait-Anxiety after participation in a cardiac rehabilitation program.
4. Coronary artery disease patients did not experience a significant improvement in self-care behaviors after participation in a cardiac rehabilitation program.
5. Failure to support the hypotheses may be due to too small a sample.

Generalizations from this study should be made with caution and is limited pending further analyses with larger and random samples of patients. The representativeness of the sample is not known.

Nursing Implications

Routine assessments of patients entering cardiac rehabilitation programs should consider including many client dimensions (recommended self-care behaviors, anxiety) in addition to physical assessment. This would assist the nurse in a comprehensive plan of care and educational interventions for the individual coronary artery disease patient. Patients scoring in the moderate to high anxiety levels, and those with decreased ability to modify responses to stressful situations, may need individualized counseling in how to deal with their emotions. Teaching and practicing relaxation with these patients may be helpful. Patient outcomes also need to be assessed on completion of rehabilitation for use in patient outcome evaluation.

Recommendations for Further Study

Based on the results of this study, the following recommendations are made. First, a larger sample size that would possibly yield more statistically significant results. Second, the replication of this study with a random sample from multiple cardiac rehabilitation programs might increase the possibility of more generalizable findings. Third, the use of different tools more sensitive to subtle behavioral changes could offer more valid measurement of the variables. Finally, due to previous conflicting study results, continued research directed at the influence of cardiac rehabilitation on clients' quality of life, anxiety, and self-care behaviors is warranted. Replications of the present study as well as longitudinal studies, measuring the variables at three month intervals, might allow a temporal assessment of any changes that might occur.

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Appendix A

Consent form

In signing this document, I am giving my consent to answer questionnaires administered by Susan Wilkinson RN, BSN who is a graduate student in the nursing program at Incarnate Word College. I understand that I will be part of a masters thesis research study that will focus on the effects of cardiac rehabilitation program participation on anxiety, quality of life, and self-care among coronary artery disease patients. The study and the researcher are in no way connected to, or responsible for, the design of the rehabilitation program which is conducted solely by the Health Club of San Angelo.

I understand that the questionnaires will be administered on two separate occasions. The questionnaires will be answered initially at my cardiac rehabilitation program orientation session and again upon completion of the 12 week cardiac rehabilitation program. The questionnaires will take about 30 minutes to complete.

This information is granted freely. I have been informed that the filling out of the questionnaires is entirely voluntary, and that even after the filling out the questionnaires I can refuse to answer any specific questions or decide to terminate my participation at any point. I have been told that my answers to questions will not be given to anyone else and no reports of this study will ever identify me in any way. I have also been informed that my participation or nonparticipation or my refusal to answer questions will have no effect on services that I or any member of my family may receive from The Health Club of San Angelo, a not-

for-profit center affiliated with Angelo Community Hospital in San Angelo,
Texas.

This study will help develop a better understanding of the psychological as well as physical effects of participation in a cardiac rehabilitation program by coronary artery disease patients. However, I will receive no direct benefit as a result of participation.

I understand that the results of this research will be given to me if I ask for them and that Susan Wilkinson, RN, BSN is the person to contact if I have any questions about the study or about my rights as a study participant. Mrs. Wilkinson can be reached through a collect call at (915) 944-2206.

Date

Respondent's Signature

Interviewer's Signature

Appendix B

Cardiac Rehabilitation

Patient Goals and Interventions

Risk Factors for Coronary Artery Disease

Goal: Patient will verbalize risk factors for coronary artery disease.

Nursing Interventions: 1. Nurse will give patient a written copy of coronary artery disease risk factors and review it with the patient.

2. Nurse will discuss with patient ways to decrease patient's individual risk factors.

Medications

Goals: Patient will carry card in wallet listing all his/her medications and dosages.

Patient will verbalize understanding of dosages and actions of his/her drugs.

Nursing Interventions: 1. Nurse will prepare and give patient a wallet card listing medications and dosages.

2. Nurse will prepare and give patient cards listing drug actions.

3. Nurse will discuss with patient dosages and actions of his/her individual drugs.

4. Patient will be asked to verbalize medication names, dosages, and drug actions.

NTG Protocol

Goal: Patient will verbalize NTG protocol.

Nursing Interventions: 1. Nurse will review NTG protocol with patient.

2. Nurse will give patient wallet card listing the proper method of using NTG.

3. Patient will be asked to verbalize NTG protocol to the nurse.

Home Exercise Program

Goal: Patient will verbalize the importance of a home exercise program in the treatment of coronary artery disease.

Patient will exercise for 30 minutes, three times a week, keeping maximum heart rate at 20-30 BAR.

Patient will not exercise during conditions of extreme heat and humidity.

Nursing Interventions: 1. Nurse will discuss with patient the importance of a home exercise program.

2. Nurse will discuss time and intensity of exercise, helping patient find alternatives during conditions of extreme temperatures and/or humidity.

Stress Reduction

Goals: Patient will verbalize ways to reduce stress in his/her life.

Patient will verbalize understanding that increased stress can contribute to coronary artery disease.

Nursing Interventions: 1. Nurse will help patient identify factors contributing to increased stress in his/her life.

2. Nurse will discuss ways in which patient can decrease stress.

3. Nurse will give patient written information dealing with stress awareness and management.

Pulse Counting

Goals: Patient will demonstrate location of radial and carotid pulses.

Patient will demonstrate how and when to count a pulse during exercise.

Nursing Interventions: 1. Nurse will show patient location of radial and carotid pulses.

2. Nurse will teach patient to count pulse, resting heart and to keep maximum heart rate during exercise at 20-30 BAR.

Dietary

Goals: Patient will verbalize understanding of the importance of a cardiac prudent diet in the treatment of coronary artery disease.

Patient will verbalize understanding of ways to decrease dietary fat and salt intake.

Nursing Interventions: 1. Nurse will discuss the importance of a cardiac prudent diet in the treatment of coronary artery disease.

2. Nurse will discuss ways to decrease salt and fat intake.

3. Nurse will give patient a wallet card listing the fat

content of various meat cuts.

4. Nurse will schedule a dietary consult for patient if necessary.



3501 KNICKERBOCKER ROAD - SAN ANGELO, TEXAS 76904-7698 (915) 949-9511
A NON-PROFIT FAMILY MEDICAL CENTER

February 7, 1994

Susan S. Wilkinson, R.N.

Dear Susan:

It is our understanding that you wish to use Health Club of San Angelo Phase II patients as your sample for your thesis research entitled: "The Effects of Cardiac Rehabilitation on Coronary Artery Disease Clients." Permission to do so is granted subject to Angelo Community Hospital's approval of all forms and procedures once your topic has received final approval from Incarnate Word University. Also, any conditions which may necessitate procedural changes once the thesis is in progress must be approved. Angelo Community Hospital supports research in the health care field, but our primary interest is quality care and the protection of our patients' rights and confidentiality.

I would suggest that you also send a note to each physician who has a patient involved and inform him of what you plan to do after you get your approval.

Sincerely,

Robert E. Butler, FACHE
President

cc: Dennis Durham, M.D.
Chief of Medicine

Patricia Hutchinson, Ed.D.
Vice President for Wellness

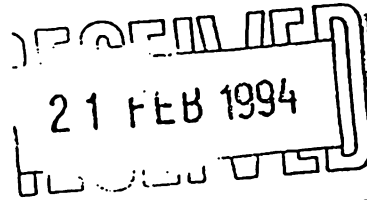
WITH THE COMPLIMENTS OF

Appendix D

BLACKWELL SCIENTIFIC PUBLICATIONS LTD

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Telephone Oxford 240201



a requirement for the completion
n Antonio, Texas. The subject of
habilitation program participation
ry artery disease patients. I am
Simmons, S.J., 1990, 15, 1162-66)
guiding my study. I am writing to
ate the model in my thesis

proposal. Please inform me if there is any charge for its use. Thank you for your time
and consideration.

Sincerely,

Susan Wilkinson, R.N., B.S.N.
5425 Beverly Drive
San Angelo, Texas
U. S. A. 76904

16/2/94 →

BSP Copyright Office
I agree, approximate
to author
These and
communications

J. Davies 2/12/94

UNITED STATES OF THE
LEGISLATIVE

AMERICAN COLLEGE OF



University of Washington
Seattle, Washington 98195

School of Public Health and Community Medicine

Department of Health Services, SC-37
(206) 543-8866
FAX: (206) 543-3964

October 25, 1993

Susan Wilkinson
5425 Beverly Drive
San Angelo, TX 76904

Dear Ms. Wilkinson:

Enclosed is a copy of the Perceived Quality Of Life Scale (PQOL). The PQOL is currently being used in several US studies with older adults and seriously ill persons in an expanded 20-item form. The measure is a useful adjunct to the use of the SIP or its British version, the Functional Limitations Profile. A large number of studies have been published using this instrument, and I am receiving an increasing number of UK enquiries.

I hold the copyright for the PQOL measure. The copyright should be indicated on any forms using the measure. I would appreciate being notified of its use, contacted to approve any changes made to the instrument, being cited as the developer, and being sent the copies of any reports or published articles using them. There are no fees for using the instrument.

Disadvantages to the PQOL include the tendency of respondents to assign high ratings to their satisfaction with health and other life spheres, yielding a skewed distribution. This can be handled by cutting the distribution at the median response or some other cut-point determined by observation of your data. A major advantage is that the FLP category scores can be related to satisfaction measures using the PQOL.

I am currently working on an article on the PQOL that will report its test-retest reliability and change scores. These are not available at present. Please contact me if you wish additional information.

Yours sincerely,

Freddie Howell for Donald Patrick

Donald L. Patrick, PhD, MSPH
Professor and Director,
Social and Behavioral Sciences Program

DLP/jh
Enclosure: PQOL



University of Washington
Seattle, Washington 98195

School of Public Health and Community Medicine

Department of Health Services, SC-37
(206) 543-8866
FAX: (206) 543-3964

May 16, 1994

Susan Wilkinson, R.N., B.S.N.
5425 Beverly Drive
San Angelo, TX 76904

Dear Ms. Wilkinson:

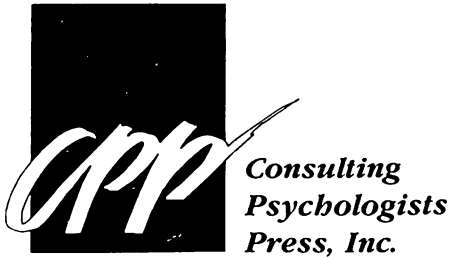
Thanks for your letter concerning the validity and test-retest reliability of the PQOL. I have not yet published the psychometric properties of the full instrument. We are in the process of analyzing data and writing the report.

If you have specific questions, let me know.

Sincerely,

Donald L. Patrick, PhD, MSPH
Professor and Director,
Social and Behavioral Sciences Program

DP/rm
Enclosure



Dear Customer,

You recently requested permission to "use" one of our testing instruments. No permission is necessary if you wish to use the tool in your research exactly as it is printed. You must be qualified, however, to purchase our materials.

The catalog I have enclosed for your examination contains Consulting Psychologists Press, Inc.'s Purchaser Qualification Form which details the requirements for the purchase of restricted materials. CPP requires a written copy of each customer's qualifications before selling any restricted test materials. For this reason, we believe that the responsibility for "use" belongs to the customer. In the case of a student the request should come jointly from the student, and the professor who supervises the research (and who cosigns the Purchaser Qualification Form). Please send your completed Purchaser Qualification Form, order, and prepayment to:

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enclosure - CPP Catalog

Briar Cliff College

Appendix G

October 21, 1993

Susan Wilkinson, R.N., B.S.N.
5425 Beverly Drive
San Angelo, TX 76904

Dear Ms. Wilkinson:

Enclosed is a copy of the Health Behavior Scale that you requested.
My only requirement is that you reference its use appropriately.

Sincerely,

A handwritten signature in cursive script that reads "Sr. Patricia Miller".

Sr. Patricia Miller, Ph.D., R.N.
Chairperson, Department of Nursing

SPM/mn
encl

Briar Cliff College

Appendix H

May 12, 1994

Susan Wilkinson, R.N., B.S.N.
5425 Beverly Drive
San Angelo, TX 76904

Dear Susan,

The article in July-August issue of Heart and Lung describes scale development. Content validity is described as scale developed on each aspect of the medical regimen. This type of scale does not lend itself to test-retest. It has been used for twelve years with consistent reliabilities of .85 - .95 for all subscales.

No further methodological checks have been used.

I wish you much success in your research project.

Sincerely,

A handwritten signature in cursive script that reads "Sr. Patricia Miller".

Sr. Patricia Miller, Ph.D., R.N.
Chairperson, Department of Nursing

SPM/mn

SELF-EVALUATION QUESTIONNAIRE

Appendix I

Developed by Charles D. Spielberger
in collaboration with
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

STAI Form Y-1

Name _____ Date _____ S _____
Age _____ Sex: M _____ F _____ T _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

NOT AT ALL
MODERATELY
SOMEWHAT
VERY MUCH SO

- | | | | | |
|--|---|---|---|---|
| 1. I feel calm | ① | ② | ③ | ④ |
| 2. I feel secure | ① | ② | ③ | ④ |
| 3. I am tense | ① | ② | ③ | ④ |
| 4. I feel strained | ① | ② | ③ | ④ |
| 5. I feel at ease | ① | ② | ③ | ④ |
| 6. I feel upset | ① | ② | ③ | ④ |
| 7. I am presently worrying over possible misfortunes | ① | ② | ③ | ④ |
| 8. I feel satisfied | ① | ② | ③ | ④ |
| 9. I feel frightened | ① | ② | ③ | ④ |
| 10. I feel comfortable | ① | ② | ③ | ④ |
| 11. I feel self-confident | ① | ② | ③ | ④ |
| 12. I feel nervous | ① | ② | ③ | ④ |
| 13. I am jittery | ① | ② | ③ | ④ |
| 14. I feel indecisive | ① | ② | ③ | ④ |
| 15. I am relaxed | ① | ② | ③ | ④ |
| 16. I feel content | ① | ② | ③ | ④ |
| 17. I am worried | ① | ② | ③ | ④ |
| 18. I feel confused | ① | ② | ③ | ④ |
| 19. I feel steady | ① | ② | ③ | ④ |
| 20. I feel pleasant | ① | ② | ③ | ④ |



SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

Name _____ Date _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

ALMOST NEVER
SOMETIMES
OFTEN
ALMOST ALWAYS

- | | | | | |
|--|---|---|---|---|
| 21. I feel pleasant | ① | ② | ③ | ④ |
| 22. I feel nervous and restless | ① | ② | ③ | ④ |
| 23. I feel satisfied with myself | ① | ② | ③ | ④ |
| 24. I wish I could be as happy as others seem to be | ① | ② | ③ | ④ |
| 25. I feel like a failure | ① | ② | ③ | ④ |
| 26. I feel rested | ① | ② | ③ | ④ |
| 27. I am "calm, cool, and collected" | ① | ② | ③ | ④ |
| 28. I feel that difficulties are piling up so that I cannot overcome them | ① | ② | ③ | ④ |
| 29. I worry too much over something that really doesn't matter | ① | ② | ③ | ④ |
| 30. I am happy | ① | ② | ③ | ④ |
| 31. I have disturbing thoughts | ① | ② | ③ | ④ |
| 32. I lack self-confidence | ① | ② | ③ | ④ |
| 33. I feel secure | ① | ② | ③ | ④ |
| 34. I make decisions easily | ① | ② | ③ | ④ |
| 35. I feel inadequate | ① | ② | ③ | ④ |
| 36. I am content | ① | ② | ③ | ④ |
| 37. Some unimportant thought runs through my mind and bothers me | ① | ② | ③ | ④ |
| 38. I take disappointments so keenly that I can't put them out of my
mind | ① | ② | ③ | ④ |
| 39. I am a steady person | ① | ② | ③ | ④ |
| 40. I get in a state of tension or turmoil as I think over my recent concerns
and interests | ① | ② | ③ | ④ |

REVISED March 1992

PERCEIVED QUALITY OF LIFE SCALE®

This document describes the development and use of the Perceived Quality of Life Scale (PQOL), a measure of individual or group satisfaction with the major categories of fundamental life needs. Scale items were developed using human need theory to establish the content of the instrument. The measure also incorporates the areas of dysfunction included in the Sickness Impact Profile (SIP) developed in the United States and the Functional Limitations Profile (FLP), an equivalent measure to the SIP developed in the United Kingdom. The PQOL can be correlated with SIP or FLP Category Scores to investigate the relationship between functional status and satisfaction with functioning.

For additional information: Dr. Donald L. Patrick
 Department of Health Services SC-37
 School of Public Health and
 Community Medicine
 University of Washington
 Seattle, WA 98195

PHONE: (206) 543-8866
 FAX: (206) 543-3964
 E-MAIL: Donald@U.Washington.Edu

Instructions for Interviewers:

The 20 questions in the Perceived Quality of Life Scale require the respondent to assess how satisfied he/she is with different aspects of his/her health and life. For each item, you will be asking the respondent to rate satisfaction on a scale from 0 to 10 where 0 is extremely dissatisfied and 10 is very satisfied. Have the respondent look at the scale on a card (See CARD 1 below) and give you a number between 0 and 10. Record that number on the scale sheet. NOTE: The exception is item 20. Here the respondent is asked to rate his/her happiness on a scale from 0 to 10 where 0 is extremely unhappy and 10 is very happy (See CARD 2 below).

Some respondents unfamiliar with rating scales or with questionnaires in general may have difficulty in directly assigning a number from 0 to 10 to indicate their level of satisfaction/dissatisfaction. For these respondents, a two or three step procedure can be followed. Verbal anchors on a card (satisfaction/dissatisfaction for items 1-19 and happy/unhappy for item 20) can be shown to these respondents as follows:

Very dissatisfied/unhappy	=	0
Somewhat dissatisfied/unhappy	=	1 or 2
A little dissatisfied/unhappy	=	3 or 4

Neither satisfied/happy or dissatisfied/unhappy	=	5
A little satisfied/happy	=	6 or 7
Somewhat satisfied/happy	=	8 or 9
Very satisfied/happy	=	10

Ask the respondent to give you the word that best indicates his or her level of satisfaction/happiness. For verbal categories that have two numerical scores, then ask the respondent to choose the lower number or higher number that indicates their perceived level of satisfaction/happiness. Most respondents are able to choose between the two numbers. In cases where respondents cannot or refuse to choose one of the two numbers, then toss a coin to decide (heads=lower number, tails=higher number).

CARD 1

	0	1	2	3	4	5	6	7	8	9	10	
EXTREMELY DISSATISFIED												VERY SATISFIED

CARD 2

0 1 2 3 4 5 6 7 8 9 10

EXTREMELY UNHAPPY

VERY HAPPY

The following instructions are for INTERVIEWER-ADMINISTRATION:

I want to talk to you now about your satisfaction with your health and other fundamental aspects of your life. Some people are more or less satisfied or dissatisfied with the different aspects of their lives. We want you to think about your own life situation and tell us just how satisfied or dissatisfied you are. I want you to give us a number on a scale of 0 to 10 where 0 is extremely dissatisfied and 10 is very satisfied. I want you to look at the scale and give me a number between 0 and 10 which best represents how satisfied or dissatisfied you feel. SHOW RESPONDENT CARD 1 FOR ITEMS 1-19 AND CARD 2 FOR ITEM 20).

How satisfied are you with:

P *1 Your physical health (the health of your body)?

0 1 2 3 4 5 6 7 8 9 10

EXTREMELY DISSATISFIED

VERY SATISFIED

How satisfied are you with:

P 2 How well you care for yourself, for example, preparing meals, bathing, or shopping?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

C *3 How well you think and remember?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

P 4 The amount of walking you do?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

P 5 How often you get outside the house, for example, going into town, using public transportation or driving?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

C 6 How well you carry on a conversation, for example, speaking clearly, hearing others, or being understood?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

7 The kind and amount of food you eat?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

S *8 How often you see or talk to your family and friends?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

How satisfied are you with:

- S *9 The help you get from your family and friends, for example, helping in an emergency, fixing your house, or doing errands?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

- S *10 The help you give to your family and friends?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

- S *11 Your contribution to your community, for example, a neighborhood, religious, political or other group?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

- S *12 Your retirement or current job?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

- S 13 The kind and amount of recreation or leisure you have?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

- S *14 Your level of sexual activity or lack of sexual activity?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

- S *15 The way your income meets your needs?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

How satisfied are you with:

S *16 How respected you are by others?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

S *17 The meaning and purpose of your life?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

S 18 The amount of variety in your life?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

P 19 The amount and kind of sleep you get?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY DISSATISFIED VERY SATISFIED

S *20 How happy are you?

0 1 2 3 4 5 6 7 8 9 10
EXTREMELY UNHAPPY VERY HAPPY

**Indicates items from original 12-item version*

Scoring Instructions and Scale Characteristics:

Twenty item scores and an overall score based on the mean or median of the 20 item scores can be constructed. Internal consistency (Cronbach's Alpha) for the original 12 item PQOL scale is .88 or above for both ill and well older adults. Most older adults express a moderate to high level of satisfaction.

Factor Structure: Factor analyses of the 20P-item PQOL were conducted on data obtained from 2500 well older adults participating in a health promotion/disease prevention project conducted by the University of Washington and Group Health Cooperative of Puget Sound. These analyses, conducted using the "PROMAX" rotation in SAS, resulted in three factors labelled as follows:

P = Physical Health
S = Social Health
C = Cognitive Health

Item 7 did not appear to fall into any factor and is best to use on its own. Subscale scores for satisfaction with physical, social, and cognitive health can be used in analyses as well as overall score.

Publications:

Patrick DL, Danis M, Southerland LI, and Hong G (1988) Quality of life following intensive care. J Int Med 3(3):218-223.

Danis M, Patrick DL, Southerland LI, and Green M (1988) Patients' and families' preferences for medical intensive care. J Amer Med Assoc 260(6):797-802.

Norburn J, Patrick DL, Beresford SA, and Stein J (1987) Functional status and perceived quality of life among older persons. Proceedings of the 21st Public Health Conference on Records and Statistics 13-15 July 1987. Washington DC: National Center for Health Statistics.

Health Behavior Scale *

Patients with Heart Conditions

Investigator _____

Subject Code Number _____

Date _____

Instructions: This questionnaire contains five sections of statements pertaining to actions of following prescribed diet, limiting smoking, following recommended activity, taking medications and modifying responses to stressful situations which the doctor and nurse recommended to you to help your heart condition. Each section has two parts: Part A which includes statements of carrying out the action in different environments; Part B which includes statements about other people's thoughts toward carrying out the action in different environments.

In Parts A and B each statement has five spaces for indicating the extent you believe you carried out the actions during the past year at home, at work, and while participating in sports or recreational activities and social activities. The rating scale for indicating this ranges from 1 to 5 with number 1 indicating you are fairly sure you are not performing the action to number 5 indicating you are fairly sure you are performing the action. If an action in any section does not apply to you, skip that section and go on to the next. It will be very helpful to us if you answer as many statements as possible.

unlikely

likely

Example:

1

2

3

4

5

If I become very ill, I will
go to the hospital.

	X			
--	---	--	--	--

Sister Patricia Miller, R.N., Ph.D.
Professor and Chairperson
Department of Nursing
Briar Cliff College
Sioux City, IA 51104

SECTION I - ACTION: FOLLOW THE DIET PRESCRIBED BY MY DOCTOR (INCLUDING ALCOHOL)

	Unlikely		Likely		
Part A.	1	2	3	4	5
1. When at home, I follow the prescribed diet.					
2. When at work, I follow the prescribed diet.					
3. When participating in sports or recreational activities, I follow the prescribed diet.					
4. When participating in social activities, I follow the prescribed diet.					

	Unlikely		Likely		
Part B.	1	2	3	4	5
5. Most people who are important to me think I should follow the prescribed diet at home.					
6. Most people who are important to me think I should follow the prescribed diet at work.					
7. Most people who are important to me think I should follow the prescribed diet while participating in sports or activities.					
8. Most people who are important to me think I should follow my prescribed diet while participating in social activities.					

SECTION II - ACTION: LIMIT SMOKING AS SUGGESTED BY MY DOCTOR

	Unlikely			Likely	
Part A.	1	2	3	4	5
1. When at home, I limit smoking as suggested by my doctor.					
2. When at work, I limit smoking as suggested by my doctor.					
3. When I participate in sports, or recreational activities, I limit smoking as suggested by my doctor.					
4. When I participate in social activities, I limit smoking as suggested by my doctor.					

	Unlikely			Likely	
Part B.	1	2	3	4	5
5. Most people who are important to me think I should limit smoking at home.					
6. Most people who are important to me think I should limit smoking at work.					
7. Most people who are important to me think I should limit smoking while participating in sports or recreational activities.					
8. Most people who are important to me think I should limit smoking while participating in social activities.					

SECTION III - ACTION: FOLLOW THE ACTIVITIES PRESCRIBED BY MY DOCTOR

	Unlikely			Likely	
	1	2	3	4	5
Part A.					
1. When at home, I follow the prescribed activity regimen.					
2. When at work, I follow the prescribed activity regimen.					
3. When participating in sports or recreational activities, I follow the prescribed activity regimen.					
4. When participating in social activities, I follow the prescribed activity regimen.					

	Unlikely			Likely	
	1	2	3	4	5
Part B.					
5. Most people who are important to me think I should follow my prescribed activity regimen at home.					
6. Most people who are important to me think I should follow my prescribed activity regimen at work.					
7. Most people important to me think I should follow my prescribed activity regimen while participating in sports or recreational activities.					
8. Most people who are important to me think I should follow my prescribed activity regimen while participating in social activities.					

SECTION IV - ACTION: TAKE MEDICATIONS AS PRESCRIBED BY MY DOCTOR

	Unlikely			Likely	
Part A.	1	2	3	4	5
1. When at home, I take my pre-scribed medications.					
2. When at work, I take my pre-scribed medications.					
3. When participating in sports or recreational activities, I take my prescribed medications.					
4. When participating in social activities, I take my pre-scribed medications.					

	Unlikely			Likely	
Part B.	1	2	3	4	5
5. Most people who are important to me think I should take my prescribed medications at home.					
6. Most people who are important to me think I should take my prescribed medications at work.					
7. Most people who are important to me think I should take my prescribed medications while participating in sports or recreational activities.					
8. Most people who are important to me think I should take my prescribed medications while participating in social activities.					

SECTION V - ACTION: MODIFY MY RESPONSES TO SITUATIONS THAT UPSET ME

	Unlikely			Likely	
Part A.	1	2	3	4	5
1. When at home, I modify my responses to situations that upset me.					
2. When at work, I modify my responses to situations that upset me.					
3. When participating in sports or recreational activities, I modify my responses to situations upset me.					
4. When participating in social activities, I modify my responses to situations that upset me.					

	Unlikely			Likely	
Part B.	1	2	3	4	5
5. Most people who are important to me think I should modify my responses to situations that upset me at home.					
6. Most people who are important to me think I should modify my responses to situations that upset me at work.					
7. Most people who are important to me think I should modify my responses to situations that upset me while participating in sports or recreational activities.					
8. Most people who are important to me think I should modify my responses to situations that upset me while participating in social activities.					

Thank you for helping us with this research project.



CARDIAC REHABILITATION

PATIENT MANUAL

WELCOME TO CARDIAC REHABILITATION

Welcome to our Phase II cardiac rehabilitation program. This program is designed to gradually recondition your heart and help you to get into "better shape" after your heart attack, bypass surgery or other heart related incident. The program lasts twelve weeks, although your physician may wish for you to remain in the program for a shorter or longer period of time.

The exercise sessions are held three times per week: Mondays, Wednesdays, and Fridays from 8:00 to 9:00 a.m., 9:00 to 10:00 a.m., 2:00 to 3:00 p.m., or 3:00 to 4:00 p.m. We would like for you to arrive about ten minutes early to allow time to get your blood pressure taken and get hooked up to the heart monitor.

Your exercise program is written individually for you based on the results of your treadmill test and your specific needs and capabilities. The exercises will take place in the Health Club, utilizing various pieces of exercise equipment including stationary bicycles, treadmills, air-dyne bicycles, rowing machines and stair climbing machines. You will begin very slowly and as your heart becomes stronger, your activity will increase.

In addition to your exercise regimen, our staff will present educational material covering topics related to the heart. These sessions will discuss such things as your medications, home exercise, stress management and coronary artery disease risk factor modification.

When you come to the exercise sessions, wear comfortable clothing and supportive tennis or gym-type shoes. There are lockers and showers for your use in the locker rooms. Towels are provided.

The program is run by registered nurses with experience in cardiac care and advanced cardiac emergency procedures. There is a physician on the premises of the Health Club at all times during your classes.

We work closely with a registered dietitian to help you maintain a heart healthy diet. She presents special sessions dealing with different aspects of your food plan each month. Each Wednesday you are invited to sample a cardiac prudent recipe following your class.

If you have any questions concerning the program or will have to miss a session, please call 947-2582.

THANK YOU FOR YOUR INTEREST AND PARTICIPATION.

WE LOOK FORWARD TO WORKING WITH YOU!

CARDIAC REHABILITATION

The exercise classes you will attend as part of the Cardiac Rehabilitation program are designed to place a gradually increasing workload on the circulation and thereby to improve its function. This is done by slowly increasing the time and duration of exercise. Because the exercises begin very slowly, you may be tempted to over exert yourself. Don't. The graduated schedule allows your heart time to adjust to increasing amounts of work.

As soon as you feel able, you will need to begin exercising at home on the days you do not attend the Cardiac Rehabilitation classes. Walking is an excellent form of aerobic exercise which does not require special equipment or space. However, you should avoid walking outdoors in extreme heat and humidity. Walking early in the morning or later in the evening during the summer months is a good idea. You might also enjoy walking in the Mall. An exercise bicycle is another option. Eventually you will build up to 30 minutes of exercise everyday, but you must start out slowly. For example, if you are only exercising for 20 minutes during your Cardiac Rehabilitation classes, keep your home exercise time to 20 minutes also. Increase home time as class time increases.

It is acceptable to split your time, for example, exercising for 15 minutes in the morning and 15 minutes in the afternoon. Or, you could walk 15 minutes and ride an exercise bike for 15 minutes.

It is important that you check your

heart rate before exercise and then again about halfway into your workout. Your heart rate will be at its fastest about halfway into your workout. At its fastest, it should be 20-30 beats higher than before you began exercising. For example, if your heart rate is 80 beats per minute before you exercise, it should be 100-110 beats per minute when you are about halfway through your workout. If your heart rate is less than 20 beats above your resting rate, you will need to increase your pace a little; if it is higher than 30 beats, then you will need to slow down.

After you have completed the Cardiac Rehabilitation program, it is essential that you continue exercising on your own. After the 12 weeks of rehabilitation, it is very likely that you will be feeling better than you have felt in quite some time. To continue this level of fitness and help prevent new blockages in your arteries, you must make a commitment to enacting some permanent changes in your lifestyle. A regular exercise program of at least 30 minutes each day, and following a low-fat diet and keeping your weight under control are essential.

You can continue the home exercise program you began during the Cardiac Rehabilitation program, exercising everyday, or you have the option of continuing to exercise in the Health Club as part of Phase III of the Cardiac Rehabilitation program. The Health Club staff will give you more information about this program as you near the end of rehabilitation.

RATING OF PERCEIVED EXERTION (RPE) THE BORG SCALE

The RPE scale (Rating of Perceived Exertion) is used by us to provide feedback on how you feel at any given point during exercise. While we follow your heart rate, blood pressure and electrocardiogram during exercise, we don't know how difficult you feel the level of exercise is unless we ask. This scale gives us a uniform way of measuring how difficult you perceive the exertion to be.

When we ask you how you are feeling based on the RPE scale, we want you to give us a number. The number "6" would correspond to the lightest level of activity you could imagine; a level of exertion which you could continue all day.

The number "20" corresponds to a level of exertion which you cannot continue; you are too tired to walk five more feet.

There is no correct or incorrect answer when we ask you to rate your RPE. It is simply another way to ask how you are feeling.

6	
7	VERY, VERY LIGHT
8	
9	VERY LIGHT
10	
11	FAIRLY LIGHT
12	
13	SOMEWHAT HARD
14	
15	HARD
16	
17	VERY HARD
18	
19	VERY, VERY HARD
20	

WHY EXERCISE?

THERE ARE MANY BENEFICIAL PHYSIOLOGICAL EFFECTS OF EXERCISE. EXERCISE INCREASES THE EFFICIENCY OF THE HEART MUSCLE AND ALSO IMPROVES THE BODY MUSCLES' ABILITY TO UTILIZE OXYGEN. THIS ENABLES YOU TO PERFORM MORE WORK AND GENERATE ENOUGH ENERGY TO MEET THE DEMANDS OF DAILY LIFE (PERSONAL NEEDS, HOME CHORES, WORK) AND HAVE ENOUGH ENERGY LEFT TO ENJOY LEISURE TIME ACTIVITIES.

POSSIBLE BENEFITS YOU MAY NOTICE

DECREASE IN TRIGLYCERIDE AND CHOLESTEROL LEVELS.

DECREASED RESTING HEART RATE.

INCREASED EXERCISE TOLERANCE REFLECTED BY YOUR ABILITY TO PERFORM MORE WORK AT YOUR TARGET HEART RATE.

LESS ANGINA PECTORIS OR CHEST PAIN DURING EXERCISE SESSIONS AND ACTIVITIES OF DAILY LIVING.

INCREASED ENERGY LEVELS DURING YOUR WORK DAY AND LEISURE TIME ACTIVITIES.

INCREASED TOLERANCE TO ANXIETY AND STRESS.

SENSATION AND FEELING OF LOOKING BETTER.

A REALISTIC WAY TO LOSE AND CONTROL WEIGHT.

SOME OF THESE CHANGES MAY TAKE PLACE AS YOUR ENDURANCE IMPROVES AND YOUR PROGRESS IN YOUR EXERCISE PROGRAM.

WARM UP AND COOL DOWN EXERCISES

Each exercise-training session should include a warm-up period, an endurance or training period and a cool-down period. The warm-up and cool-down period consists of low-level activity versus the training period which consists of dynamic, aerobic activity.

The warm-up period should be approximately 10 minutes and includes flexibility exercises, mild calisthenics and light resistance or strengthening exercises. The warm-up segment permits a gradual transition from rest to exercise and decreases the susceptibility to injury as it:

- * increases the heart rate at a gradual rather than a sudden pace**
- * gets the body and mind ready for physical work**
- * increases muscle and body temperature**
- * loosens joints and muscles and reduces strain**
- * decreases the occurrence of arrhythmias due to sudden exertion**

Remember: breathe regularly and evenly during the warm-up and cool-down sessions. Do not hold your breath! Do not do anything that hurts or causes pain.

The cool-down session should be approximately 10 minutes and may include the same exercises performed during warm-up. The lack of proper cool-down exercises may be the most common cause of cardiovascular complications after exercise. The cool-down session allows for a physiological readjustment to the resting state and is necessary to:

- * allow return of heart rate and blood pressure to near pre-exercise level**
- * prevent blood from pooling. During exercise, the working muscles help return blood to the heart. If this help is suddenly taken away, the blood tends to pool in the lower extremities which may cause dizziness, muscle cramps, fainting and arrhythmias.**
- * gradually stretch and cool muscles**

The warm-up and cool-down periods are essential components of your exercise-training session, the importance of which cannot be overemphasized.

Stretching exercises are an essential part of physical conditioning. Increased flexibility through stretching may decrease the incidence of muscle and tendon injuries and minimize or alleviate muscle soreness.

Daily stretching will reduce muscle tension and make the body more relaxed. It will also improve your coordination and promote circulation. If you stretch correctly and regularly, you will find that every movement you make becomes easier.

Stretching is easy to learn, but there is a right way and a wrong way. The right way to stretch is a relaxed, sustained movement with your attention focused on the muscles being stretched. The wrong way is to bounce or to stretch to the point of pain, methods that do more harm than good.

Remember to:

Hold each stretch for at least 10 seconds.

Stretch daily including before and after periods of exertion. Alternate exercises for muscle groups on both sides of the body.

Stretch to the point of a tight feeling, but avoid pain. Don't bounce!

STRETCHING EXERCISES

1 Neck Roll: Alternating lateral movement side to side 5/5.



2 Shoulder Shrugs: 3 times for 10 seconds.



3 Triceps Stretch: (With interlaced fingers in front with palms out above head, behind back.)



4 Triceps Stretch: Pull right elbow with left hand behind head 2 times—15 seconds. Switch sides.



5 Arm Circles: Palms up—reverse motion 5 times, palms down—forward motion 5 times.



6 Side-to-Side Trunk Bends: (With reach) alternate sides 3 times each side.



7 Trunk Circles: Alternate directions 5 times each.



8 Calf Stretch: Foot forward, knee bent, heel flat, alternate legs 3 times for 10 seconds.



9 Slight Knee Bends: 5 times for 10 seconds.



HOME EXERCISE PROGRAM

One of the most important forms of therapy for most cardiovascular conditions is exercise. If you are recovering from heart surgery or a heart attack, your doctor has probably prescribed a daily exercise program to help your recovery. This program is also good if you have not exercised in a long time, and your doctor recommends exercise to help control your blood pressure or reduce your chances of cardiovascular disease.

Daily exercise may be one of the best gifts you can give yourself. It improves circulation, lowers blood pressure, helps in a weight control program, and strengthens your muscles. It can also help you sleep better, feel more energetic and increase your sense of well-being.

General guidelines

1. If you are recovering from heart surgery or a heart attack, have someone with you for the first several weeks.
2. Wait at least 2 hours after eating.
3. Wear comfortable rubber-soled walking shoes and loose clothing.
4. Avoid extreme heat or cold. Don't exercise if the temperature is over 85 degrees F. (particularly if the humidity is over 75%) or under 20 degrees F. During bad weather, walk in a covered shopping mall or gym.
5. Always begin with a 10 minute warm-up of stretching and slow walking.
6. Adopt a steady, rhythmic pace and keep it up. If you have attacks of leg cramps (claudication), you may need to alternate exercise with rest periods.
7. Watch for signs of overexertion. Stop exercising if any of these symptoms occurs: chest pain (angina), palpitations, irregular heart-beat, dizziness or lightheadedness, shortness of breath for more than 10 minutes, nausea or vomiting, extreme fatigue, pale or splotchy skin, or "cold sweat." Call your doctor if these symptoms persist.
8. Cool down with light activity for 10 minutes; for example, if you are walking fast, slow down to a stroll.

Graduated exercise programs are designed to slowly increase the time and intensity of your exercise. Because you will begin very slowly, you may be tempted to skip ahead if you feel the schedule is "too easy." Don't. The graduated schedule allows your heart time to adjust to increasing amounts of work. Skipping ahead may overwork your heart.

If you develop symptoms of overexertion, return to the previous week's schedule until you are ready to progress.

When you exercise, let your heart rate (pulse) and rate of perceived exertion (RPE) be your guide. Your target heart rate range (THRR) is from _____ to _____ beats per minute. Your RPE should fall between 11 and 13. You will need to check your heart rate each time you exercise before you do your warm-up exercises. After five minutes of exercising, stop and check your pulse. If it is too high, slow down; if it is too low, speed up your pace, but not to an uncomfortable level. Make sure you check your heart rate again during the middle of exercise, and of course, if you feel you are working too hard.

Some ideas for exercise include walking, bicycling and/or swimming, indoors or out. As we discussed, your recommended home activity includes:

Exercise at a comfortable pace, remembering to use your heart rate and RPE as guides for speed. Remember that the purpose of your exercise is to strengthen your heart muscle, not to see how fast you can do the mile! Under **NO** circumstances are you to jog or run unless directed to do so by one of our professional staff members.

The following schedule tells you how many minutes you are to spend exercising. Week 1 is the week you are given the Home Exercise Program.

Week:	1	2	3	4	5	6	7	8	9	10
--------------	----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------

Minutes:

IMPORTANT THINGS TO REMEMBER ABOUT HOME EXERCISE

DO . . .

. . . exercise regularly. It is important that you exercise every day for the rest of your life. Regular, daily exercise is the key to improvement.

. . . warm-up and cool-down properly. Warm-up gradually increases body temperature and may help prevent injury and even reduce the likelihood of developing angina. Cooling down helps prevent blood from pooling in the legs and causing a fall in blood pressure when exercise is terminated.

. . . use the "talk test" to assess whether you are exercising comfortably. If you are unable to exercise and talk easily, you need to slow down.

. . . get a good pair of shoes which comfort and cushion your steps. Tennis sneakers are ideal for exercising.

. . . exercise under comfortable conditions. Exercising under extreme hot or cold temperatures makes your heart work harder. Increased humidity makes it hard for the body to lose heat by sweating. When extremes of temperature or humidity are present, it is better to exercise indoors, as in a shopping mall.

. . . wear appropriate clothing. Light-weight clothing should be worn in warm weather and sweat-shirts and pants in cold weather.

. . . consult your physician regularly and at any time you develop unusual symptoms during your exercise program.

DON'T . . .

. . . return to a full exercise after a lay-off. Resuming the same exercise program after a period of inactivity may result in increased stress on your body and heart and lead to a greater risk of complications. Gradually work back to your previous level of activity.

. . . exercise when you are ill, have a fever, or a serious infection.

. . . take a hot shower, sauna or whirlpool after exercise. Take only a lukewarm shower.

. . . wear plastic or rubber suits while exercising. This causes retention of body heat.

. . . continue to exercise if unusual symptoms occur such as chest pain, an irregular pulse, dizziness or shortness of breath.

. . . engage in isometric exercise, such as weightlifting. Blood pressure rises abruptly during this type of exercise and puts an extra demand on the heart.

Counting Your Pulse

Your pulse is the beat of your heart. You can feel it in several parts of your body, including the inside of your wrist or the carotid artery, which is high in your neck.

Counting your pulse is the best way you can monitor your own heart rate. By counting your pulse, you know how many times your heart beats in 1 minute and how regular the beats are.

You may need to count your pulse for several reasons: (1) you may have an irregular heart-beat; (2) you may be taking a special drug to control irregular heartbeats, and you need to be sure it is working; (3) you may have a pace-maker; or (4) you may need to check your heart rate as part of an exercise program.

How to take your pulse

To count accurately, you need a clock or a watch with a second hand. You can use the pulse on your wrist or your neck, whichever is easiest for you.

To find the pulse on your wrist, press the fingertips of your index and middle fingers on the inside of your wrist (the thumb side). Do not use your thumb. If you have trouble finding this pulse, move your fingertips around until you locate it.

To find the pulse in your neck, press your fingertips in the area just under the jawbone, alongside your Adam's apple.

If you have trouble finding either pulse, try varying the amount of pressure. You can miss the pulse by pressing too lightly, but pressing too hard can obscure the pulse. Once you've found your pulse, it will be easy the next time.

Taking your pulse while resting

Your resting pulse can be taken almost any time, except after exercising, eating a large meal, or taking prescribed drugs that control heart rate.

Sit quietly for 2 minutes and relax. Find your pulse, look at the second hand on your watch or clock, and begin counting.

If you have an irregular heartbeat, you must count for exactly 60 seconds. For example, if you counted 77 pulse beats in 1 minute, this is your heart rate. Otherwise, you can count for 30

seconds and multiply by 2. For example, 41 pulses $\times 2 = 82$.

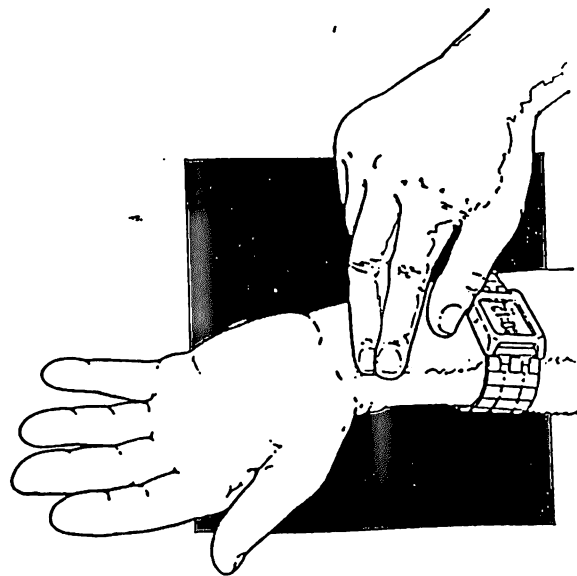
Take your resting pulse as often as your doctor instructs.

Taking your pulse after exercising

Your pulse rate during exercise can tell you whether you are getting the most benefits from your exercise program. Your doctor will give you a "target heart rate." This is how fast your heart should beat after exercising. If your pulse rate is lower than your target heart rate, you need to exercise harder next time. If your pulse rate is higher than your target rate, you must take it easier next time.

As soon as you stop exercising, locate your pulse and look at the second hand on your watch or clock. Count the beats for 6 seconds and add a zero. For example, if you counted 12, your heart rate is 120.

You should not count your exercising rate for a full minute. Because your heart slows down quickly when you stop exercising, counting for a full minute gives a lower rate.



COUNTING YOUR OWN PULSE

Learning to count on's own pulse rate is a positive step in the heart patient's becoming an active partner in his or her own care. For heart patients on a medication that regulates the heart beat, it is a vitally important step in successful medicine-taking. For heart patients on an exercise program, it is a necessary skill to prevent heart rates becoming too fast.

HOW DO I COUNT MY OWN PULSE?

There are two places where you can probably feel your pulse easily:

1. The wrist pulse (at the radial artery) is located at the base of either thumb and is best felt with the pads (not the tips) of two or three fingers of the opposite hand.

Don't press too hard at the wrist pulse or you will obliterate the artery. A light and firm pressure is all it takes.

2. The carotid pulse. On either side of the windpipe is a carotid artery, one of the largest arteries in the body and therefore one of the most easily felt. Use the middle fingers of one hand to feel the artery. Don't press both carotids at the same times; that can cause you to faint. And don't press on the carotid near the jawbone; that can stimulate some sensitive nerves and also cause you to faint.

Right way to check the carotid pulse: Feeling one artery only and feeling it in the middle of the neck.

HOW LONG DO I COUNT?

You should count either for one full minute or count for half a minute and multiply by 2 for a minute's pulse rate.

WHEN SHOULD I COUNT MY PULSE?

Check your pulse rate, at rest, before taking those medications that should be preceded by pulse-taking. Take your pulse before, during and after exercise as ordered by your doctor for your home rehabilitation program.

CORONARY ARTERY DISEASE

The heart is the hardest working muscle in the body. Every day it beats an average of 100,000 times and pumps about 2000 gallons of blood throughout the body. To handle this enormous amount of work, the heart muscle requires a continuous supply of oxygen and other nutrients from the blood. To get enough nourishment, the heart muscle has its own circulation, the right and left coronary arteries.

The coronary arteries form a network of blood vessels on the outside of the heart. If these arteries become narrowed, the heart muscle is deprived of some of its blood supply, which eventually damages the heart muscle. This is referred to as a heart attack, or **myocardial infarction**.

What causes coronary artery disease?

Cholesterol and other material can collect on artery walls, causing the arteries to narrow. This condition, called **atherosclerosis**, prevents the passage of normal amounts of blood through the arteries. As a result, two events can occur: (1) these deposits build up over time until they clog the artery so that little or no blood can pass; or (2) blood cells cling to the rough deposits, forming a clot (**thrombus**). The thrombus may grow until it completely blocks the artery, or it can break away and travel to a smaller artery, where it lodges, completely closing off circulation.

How serious is coronary artery disease?

Coronary artery disease (CAD) is very serious. Although it begins so gradually you don't notice any change, eventually it can cause chest pain (angina) or heart attack.

Angina is a burning, squeezing, or crushing sensation in the chest lasting from a few seconds to 15 minutes. It is caused by a temporary lack of oxygen to the heart muscle. The symptoms of angina can also be very similar to those of a heart attack—the pain may radiate to the arm, jaw, shoulder, or neck. Physical exertion, emotional stress, exposure to extremes of hot or cold, or overeating can prompt an angina attack. The pain usually goes away when the

aggravating activity is stopped.

Heart attacks occur when the coronary artery becomes completely blocked. When the blockage is caused by a blood clot, this is called a **coronary thrombosis**. Lack of oxygen to a portion of the heart muscle causes the tissue to die. If a large area is deprived of oxygen, the heart ceases to beat, and death results. It's important to know the symptoms of a heart attack and act promptly. Call the emergency rescue service immediately if any of the following symptoms occurs:

- Severe pressure, fullness, squeezing, or pain in the center of the chest that lasts 15 minutes or longer and is not relieved by taking nitroglycerin tablet.
- Pain spreading to the shoulders, neck, or arms.
- Dizziness, sweating, nausea, or shortness of breath that accompanies chest pain.

How is it diagnosed?

Some people have no idea they have coronary artery disease until they have a heart attack; others have the warning symptoms of angina. Sometimes coronary artery disease is diagnosed from an abnormal electrocardiogram (ECG) during a routine physical examination.

Several tests are used to diagnose coronary artery disease. **Blood tests** are done to determine the blood cholesterol level. An **electrocardiogram (ECG)** provides some basic information on the heart's performance. An **exercise stress test** shows how the heart reacts to exertion. This consists of an ECG while exercising on a treadmill or exercise bicycle.

Nuclear studies, such as a **thallium scan**, show how well the blood supply is distributed to the heart muscle. This involves injecting a small amount of radioactive material into a vein and taking motion pictures with a specialized x-ray scanner.

Cardiac catheterization gives the most complete information on coronary artery disease. This procedure allows the doctor to make a series of x-ray films called a **coronary angiogram**, which shows the number and exact location of the blockages.

PATIENT TEACHING GUIDE

HEALTH[™]CLUB
of San Angelo

Cardiovascular Disease Risk Factors

Many deaths from cardiovascular disease are preventable. In addition, for people who already have been diagnosed with cardiovascular disease, the risk of death and further complications can be reduced. Research has uncovered several factors that contribute to heart attacks and strokes. The more risk factors a person has, the greater the chance of developing cardiovascular disease. Although some risk factors cannot be changed, you can modify others with your doctor's help, and still others can be eliminated altogether. The following checklists can help you determine your risk.

Major risk factors that cannot be changed

Heredity. A tendency toward heart disease runs in families. If one or both parents had cardiovascular disease, one's chances of developing it are higher.

Race. For reasons presently unknown, blacks have a much greater risk of developing high blood pressure than whites; twice as many have moderately high blood pressure, and three times as many have extremely high blood pressure. As a result, their risk of heart disease is greater.

Sex. Men have a higher risk of heart attack and stroke than women. During the childbearing years, women produce hormones that keep blood cholesterol levels low. Male hormones have the opposite effect—they raise blood cholesterol. However, women lose this protection after menopause or surgical removal of the ovaries, and women over age 55 have a 10 times greater risk than younger women. In recent years, however, more women under age 40 have developed coronary artery disease and high blood pressure. This probably results from the use of oral contraceptives and increased smoking.

Age. Fifty-five percent of heart attacks occur in people age 65 or older.

Major risk factors that can be changed

Smoking. Smokers have more than twice as many heart attacks as nonsmokers. Sudden cardiac death occurs two to four times more frequently in smokers. Peripheral vascular disease (narrowing of the blood vessels in the arms and legs) is almost exclusively a disease of smokers. When people stop smoking, the risk of heart disease drops rapidly, and 10 years after quitting, their risk of death

from cardiovascular disease is about the same as for people who never smoked.

High Blood Pressure. High blood pressure makes the heart work harder, causing it to enlarge and become weaker over time. This can lead to stroke, heart attack, kidney failure, and congestive heart failure. For some people, high blood pressure can be controlled by a low-salt diet, weight reduction, and regular exercise. Other people also require medication to lower their blood pressure.

Blood Cholesterol Levels. A cholesterol level between 200 and 240 mg/dl increases the risk of heart disease. A cholesterol level greater than 240 mg/dl doubles the risk of coronary artery disease. The American Heart Association Diet, which is low in cholesterol and other fats, is recommended for anyone with a level of 200 or higher. Medication may also be necessary.

Other risk factors

Diabetes. Diabetes increases the risk of heart attack because it raises blood cholesterol levels. In addition, people who develop diabetes in midlife are often overweight, which is an additional risk factor.

Obesity. Excess weight forces the heart to work harder. People who are overweight are more prone to high blood pressure and high blood cholesterol levels. Obesity is defined as 30% or more over your ideal weight.

Physical inactivity. Researchers have found that people who seldom exercise do not recover as well from heart attacks. Although it is not clear if lack of exercise alone is a risk factor for developing heart disease, in combination with other risk factors, such as overweight, the risk is higher.

Stress. Excessive emotional stress over a prolonged period appears to increase the risk of heart disease. Stress can increase other existing risk factors, such as overeating, smoking, and high blood pressure.

Oral contraceptives. Birth control pills can worsen other risk factors. They raise blood cholesterol levels and increase blood pressure, so women who already have these problems should not take oral contraceptives. Smokers who take "the pill" run the risk of developing dangerous blood clots (thrombosis).

Alcohol. Heavy drinking can cause high blood pressure and lead to heart failure. Alcohol should be consumed only in moderate amounts—2 ounces of liquor a day or less.

Treatment of coronary artery disease

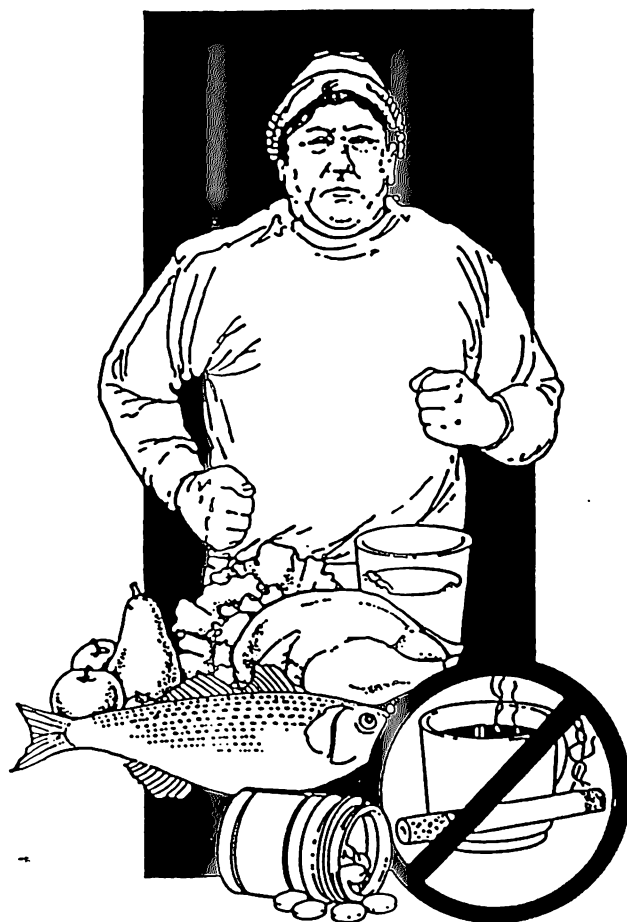
The treatment of coronary artery disease depends on the severity of the blockages. However, all patients are advised to adopt a low-cholesterol, low-fat diet, exercise regularly, quit smoking, lose excess weight, and eliminate caffeine. Alcohol can be consumed in moderation, but no more than two drinks a day. A walking or jogging program can help lower the blood cholesterol level, reduce high blood pressure, and control weight. Many people with coronary artery disease have high blood pressure and should also be on a low-salt diet. Medication may be necessary to control high blood pressure or high blood cholesterol levels.

Nitroglycerin is prescribed to prevent or treat angina. This medication acts rapidly, usually within 5 minutes, to relax the blood vessels and increase the blood supply to the heart. Nitroglycerin is available in several forms. The tablets and spray are used when an angina attack starts or before exercise is begun to prevent an attack. People who are troubled with several episodes every day may need to wear nitroglycerin skin patches to prevent attacks.

If drug therapy fails to relieve angina or the blockages are severe, your doctor may decide on more aggressive treatment. Percutaneous transluminal coronary angioplasty (PTCA), also called balloon angioplasty, is a procedure to reopen the blocked arteries. A thin tube called a catheter is inserted into an artery in the arm or leg and then guided to the obstructed coronary artery. The balloon on the tip of the catheter is inflated to press the blockage against the artery wall.

Coronary bypass surgery is another procedure used to correct severe blockages. Veins from other parts of the body are grafted onto the diseased coronary artery above and below the blockage. This graft restores blood circulation to the damaged area.

No cure presently exists for coronary artery disease. Even if you have PTCA or bypass surgery, blockages can recur. To prevent this, you must make a commitment to a "healthy heart lifestyle." This means continuing to follow the diet your doctor recommends, keeping your blood cholesterol levels and blood pressure under control, giving up smoking, adhering to your exercise program, and returning for checkups as often as your doctor recommends.



Recovering from a Heart Attack

Rehabilitation after a heart attack begins in the hospital, but it continues for 3 months after the patient goes home. For many people, rehabilitation means making some permanent changes toward leading a healthier life. These include not smoking; losing weight if you are overweight; eating a healthy low-cholesterol, low-fat diet; and avoiding stress. Your doctor will prescribe an exercise program to encourage healing. If you also have high blood pressure, a low-sodium diet may be recommended.

Many people do not require any medications after a heart attack. However, drugs may be prescribed for other conditions that may be related, such as angina, high blood pressure, high blood cholesterol level, or irregular heart beats (dysrhythmias). Since some studies report that aspirin reduces the chance of heart attacks, your doctor may recommend that you take aspirin. If medications are prescribed, take them exactly as ordered. Do not take any other medications, not even over-the-counter drugs, without first consulting your doctor.

A heart attack is a frightening event. Many people believe that because they survived this life-threatening experience, they have been given a second chance at life. As a result, they learn to slow down and do things they enjoy. You, too, may find yourself thinking about your life-style and making some important changes during the rehabilitation period.

Activity

Your first week at home should be quiet—no visitors, no work, and no telephone calls. During the first 2 or 3 weeks after leaving the hospital, socializing should be limited to a few brief visits with friends in your home. Usually after the third week, you can begin to go out for short visits.

About 6 to 8 weeks after a heart attack marks the next phase of your recovery—the gradual return to normal activity. You can usually begin driving for short distances, but avoid heavy traffic or other stressful situations. If your job is not physically demanding, your doctor may allow you to start back to work for 1 or 2 hours a day. By adding an hour or two each week, you will be working full time by the end of a month. However, you should limit yourself to no more than 8 hours a day for at least

6 months, and you should not take on any additional responsibilities.

If your job is physically demanding, it may be 3 to 4 months before you can resume work full time. It may be advisable to make a job change, particularly if your work involves heavy lifting, long hours, or considerable stress. Heavy lifting or pushing is not permitted. Avoid picking up anything that weighs more than 10 pounds.

A graduated walking program is an important part of recovery for most patients. Your doctor will prescribe a home exercise program, just as he or she prescribes any other treatment.

Sexual activity

Many heart attack patients and their spouses worry that sexual activity will bring on another heart attack. Actually, a heart attack during or after sexual intercourse occurs no more often than after any other normal activity. Sexual activity can be resumed once healing is under way. For most patients, this means refraining from sexual intercourse for at least 2 to 4 weeks after leaving the hospital. However, this depends on the severity of your heart attack, so ask your doctor.

A few heart attack patients experience chest pain (angina) during intercourse. Changing positions so that less tension is placed on the chest muscles may relieve this problem. Lying side-by-side with your partner or lying on the bottom with your partner on top may be more comfortable. Your doctor may recommend taking nitroglycerin beforehand.

Smoking

Nicotine causes the blood vessels to constrict, slows the healing process, and may cause chest pain. Smoking or chewing tobacco places an extra workload on the heart, forcing the heart to pump harder. It also interferes with the blood's ability to deliver oxygen to the body's tissues, especially the myocardium. If you were a smoker at the time of your heart attack, here's some good news: since you have not been allowed to smoke while you were in the hospital, you already have a headstart on giving it up for good. Don't start again.

Symptoms to report

Notify your doctor if you have any symptoms that could mean heart distress. These include chest pain that is not relieved by rest or taking a nitroglycerin tablet, rapid heartbeats, shortness of breath, extreme fatigue, dizziness, lightheadedness, or fainting.

Angioplasty

Fatty deposits (plaques) that have accumulated on the inside of the coronary arteries can narrow these passages considerably, causing blood flow to the heart to be dangerously reduced. Providing adequate circulation to the heart muscle is important to prevent a heart attack. Percutaneous transluminal coronary angioplasty (PTCA) and bypass surgery are two procedures that can improve the blood supply. They are performed on people who have chest pain (angina) and sometimes on those who have had a heart attack.

Who is a candidate for PTCA?

Angioplasty is not for everyone with coronary artery disease. Whether you are a good candidate for this procedure depends on the severity of your coronary artery disease and the overall functioning of your heart. Your doctor will perform a cardiac catheterization to obtain a coronary angiogram. These x-ray studies show the number and exact location of blockages. Only after a complete evaluation is done can he or she decide whether you should have angioplasty or bypass surgery.

What is PTCA?

Ballon angioplasty, also known as percutaneous transluminal coronary angioplasty PTCA, is done during cardiac catheterization. A thin, plastic tube, called a catheter, is inserted into a blood vessel in either the right groin or the right arm. Once it is positioned into the coronary artery near the narrowed portion, a smaller catheter with a deflated balloon at its tip is threaded through the cardiac catheter. When the balloon catheter reaches the narrowed portion, the balloon is inflated to flatten the fatty deposit against the artery wall. The balloon may be inflated and deflated several times.

The procedure is monitored on an x-ray screen that magnifies the images so the doctor can observe when the artery is open sufficiently. Once the artery is opened and blood is flowing more freely through the vessel, the balloon catheter is removed.

You can expect the recovery period to be similar to that following cardiac catheterization. However, you may be kept in the hospital for 1

or 2 days after PTCA to ensure no complications develop.

How safe is PTCA?

PTCA is a very safe procedure with few complications. Occasionally, emergency bypass surgery is necessary. For this reason, PTCA is performed with a heart surgery team standing by. However, this occurs in less than 5% of people who have PTCA.

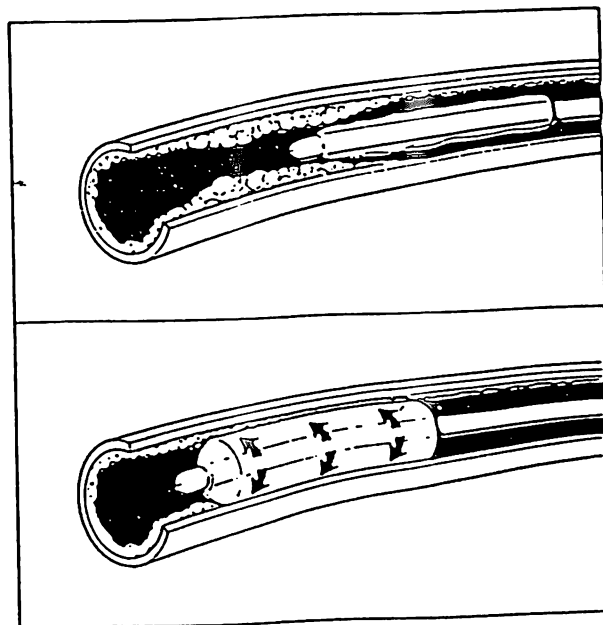
How effective is PTCA?

The dilated portion of the artery narrows again in about 30% of people who have PTCA. When this happens, the patient is reevaluated to determine whether PTCA should be repeated or bypass surgery performed.

Home instruction

You will be sent home with certain medications to prevent the formation of blood clots, which helps keep the newly opened arteries open. It is important that you take these drugs as prescribed.

Your doctor will give you specific instructions on when you can return to work, resume driving, and engage in sexual activity. In general, you should avoid any heavy lifting or demanding work for at least the first week. You may feel soreness over the groin area. If you begin to experience a return of chest pain, it is important that you notify your doctor.



Coronary Artery Bypass Surgery

In coronary artery disease, the blood vessels that nourish the heart muscle become narrowed or completely blocked, causing the amount of blood flow through them to decrease. When blood flow becomes severely reduced, there is risk of heart attack. The purpose of coronary artery bypass surgery is to improve the blood supply to an area of the heart that has been deprived of adequate circulation.

How bypass surgery is done

Coronary bypass surgery is actually two surgeries performed at the same time. One incision is made in the leg to remove a vein. This vein is used as a graft, or conduit, to create a new coronary artery. Another incision is made in the chest to allow the surgeon to reach the heart.

One end of the vein graft is sewn in the side of the aorta, the large artery of the heart. The other end of the graft is sewn below the area of the blocked coronary artery. This vein actually detours the blood around the obstruction to restore good blood flow to the area.

Sometimes more than one coronary artery is blocked, and it is necessary to insert more than one graft. The terms **double bypass**, **triple bypass**, and **quadruple bypass** indicate how many grafts are required.

The graft is usually taken from the saphenous vein in the leg or an internal mammary vein. These two veins are used because they are long enough. Since the legs and arms have numerous other blood vessels, these veins are not missed and circulation is still good after surgery. The length and number of incisions depend on how many bypasses are needed.

Coronary artery bypass surgery generally takes from 3 to 6 hours, again depending on how many bypasses are needed.

What to expect

Most patients are admitted to the hospital 1 or 3 days before coronary artery bypass surgery. Your body is shaved to help reduce the risk of infection. After midnight on the day before surgery, you receive nothing by mouth. About an hour before surgery, you are given medication to make you sleepy and relaxed. Once you are in the operating room, you receive an anesthetic that puts you to sleep.

After you are asleep, a breathing tube is put into your mouth and a drainage tube in your bladder.

After the surgery, you will spend 1 to 2 days in the intensive care unit so you can be monitored closely. Don't be alarmed by the tubes and wires—everyone is connected to all types of equipment after heart surgery. Equipment in this case includes an electrocardiogram (ECG) to monitor your heart, chest tubes to drain fluid from around your heart, a breathing tube to help you breathe, a urinary catheter to drain urine from your bladder, and an intravenous (IV) tube in your arm. Each is removed as you become more awake.

Because of the breathing tube, you won't be able to talk. A nurse will show you other ways of communicating. This tube can usually be removed within 24 hours, as soon as the effects of anesthesia have passed and you can breathe on your own.

For the first few days, most patients experience moderate pain and soreness from the surgical incisions. Inform the nurse of this, and you will receive medication to make you more comfortable.

Once the breathing tube is out, you will start deep breathing and coughing exercises and using a breathing instrument. Doing these exercises helps clear your lungs and prevents any infection such as pneumonia. Because you are sore, this may be uncomfortable at first, but this is a very important part of your quick recovery. Coughing does not disturb the stitches or bypass graft.

You will probably start getting out of bed the day after surgery. This may be very tiring at first, but your strength will improve and you'll find that each day you can walk farther with less fatigue.

Standing or walking may produce a burning sensation in the leg where the graft was taken. Your ankle may also swell. Elastic support stockings helps decrease the swelling. Foot and ankle exercises and walking also helps the circulation in your legs and hastens the healing process. These symptoms gradually disappear.

A slight fever is not unusual after bypass surgery. You will be given aspirin or an aspirin substitute for 3 or 4 days until your temperature returns to normal.

Today most surgeons use stitches that dissolve by themselves. If you have regular stitches or staples, they are removed from your chest about a week after surgery, and a few days later the ones from the leg can be removed.

The usual hospital stay after bypass surgery is 1 to 2 weeks.

Going home after coronary artery bypass surgery

Almost everyone feels weak when they first return home, regardless of the surgery performed. By gradually increasing your activity every day, your strength will soon return. Your doctor will probably prescribe an exercise program of walking. Try to maintain a good balance between activity and rest. Space your activities with rest periods to avoid fatigue. Avoid lifting objects heavier than 25 to 30 pounds until your incisions have completely healed. When you feel stronger, you can resume your normal activities, such as driving a car, visiting friends, and climbing stairs. You can also resume sexual activity. Your doctor will advise you when it is safe to resume these activities. Most people receive no extreme diet restrictions, but in general you should limit the sodium in your diet. Alcohol can affect the heart; therefore you should limit alcohol consumption to 1 or 2 drinks per day.

By the time you leave the hospital, your incisions are healing well. Wash the areas daily with mild soap and water. Examine the incisions to ensure no signs of infection are present: increased redness, swelling, or drainage. The incisions heal completely in about 6 weeks.

Most people who have jobs that are not physically demanding can return to work 4 to 6 weeks after bypass surgery. If your job requires considerable physical activity or heavy work, you may need to wait longer.

You should expect to feel some emotional let-down while you are recovering at home, and it may be a trying period for both you and your family. People often feel frustrated when their progress seems too slow. They become bored, irritable, and depressed. The best way to combat this is to discuss your feelings with your family, friends, or doctor. As your strength returns and you are able to do more, these feelings will gradually disappear.

Remember to report any signs that your incisions are infected: increased redness, swelling, or drainage. Call your doctor if any of the following symptoms occur: fever, chills, increased fatigue, shortness of breath, swelling of the legs or feet, sudden or excessive weight gain, a change in your heart rate or rhythm, or any other symptoms that worry you.

Staying healthy

To keep your new veins from developing blockages, you may need to make some permanent changes in your life-style to keep your blood cholesterol levels, blood pressure, and weight under control through diet and exercise. Medication may also be necessary to lower your blood pressure or cholesterol levels.

You must not smoke or use tobacco products. Tobacco causes the blood vessels to narrow and the heart to work harder. If you smoked before your bypass surgery, don't start again. You have already made it through the toughest part of quitting while you were in the hospital and weren't allowed to smoke.

Do not take any medications unless they are prescribed by your doctor. This includes any medications you took before your bypass surgery, unless your doctor tells you to continue taking them. Don't take any nonprescription (over-the-counter) drugs, even aspirin, until you check with your doctor first.

If you have any questions, be sure to ask. Today the risks associated with coronary artery bypass surgery are very small, and by taking proper care of yourself, you should return to a healthy, normal life-style very soon.



SIGNALS OF A HEART ATTACK

CERTAIN SYMPTOMS, OR PHYSICAL FEELINGS, HAVE BEEN IDENTIFIED AS "SIGNALS" THAT SUGGEST A HEART ATTACK IS OCCURRING. PLEASE KEEP IN MIND THAT SOME PEOPLE EXPERIENCE ALL, SOME, OR NONE OF THESE SYMPTOMS. ALSO, THE SYMPTOMS CAN BE DIFFERENT FOR DIFFERENT HEART ATTACKS BY THE SAME PERSON. THESE SIGNALS INCLUDE:

1. AN UNCOMFORTABLE SENSATION, PRESSURE, OR DISCOMFORT USUALLY BEGINNING IN THE CENTER OF THE CHEST, AND LASTING LONGER THAN FIVE MINUTES. THE PAIN ALSO MAY TRAVEL TO, OR EVEN START IN, THE SHOULDER, ARM, NECK, JAW, OR BACK. IT MAY OCCUR WITH ONE OF THESE OTHER SIGNALS:
2. SUDDEN SWEATING THAT BEGINS BEFORE OR WITH THE PAIN.
3. SHORTNESS OF BREATH.
4. NAUSEA AND/OR VOMITING.
5. A FEELING OF WEAKNESS.

STOP ANY ACTIVITY AND SIT OR LIE DOWN!

TELL SOMEONE AROUND YOU **IMMEDIATELY** AND CALL FOR EMERGENCY MEDICAL CARE AT ONCE !

EMS _____
PHYSICIAN _____
IF NO ANSWER _____
AFTER OFFICE HOURS _____

DON'T BE UNPREPARED!!

SEXUAL ACTIVITIES

After a heart attack, open heart surgery, or any heart incident, many fear that their sex lives are over. Both partners are likely to be worried about whether sexual activity will strain the heart or lead to discomfort. In fact, the energy required for sexual intercourse is approximately equal to that of climbing 1-2 flights of stairs or taking a brisk walk. If you can do those things without becoming short of breath, having chest pain, or getting tired, your heart can meet the demands needed for sex.

Anxiety and fear is normal for both partners. Take time to re-establish closeness and communication with your partner. Hugging, kissing, holding hands, stroking, and touching are warm ways to do this. Don't feel that every hug must lead to sex. This can add stress to sex. Do what makes you feel relaxed and good.

Experts agree that couples can usually return to having intercourse 3-4 weeks after a heart attack. However, every individual is different, and you must have your medical doctors okay before resuming sexual activities.

It is common for one or both partners to feel depressed after a heart attack, due in part to a fear of another heart attack or sudden death during intercourse. This common fear is not supported by facts. Nonetheless, the first few attempts at returning to sexual activities may likely be awkward and produce anxiety for one or both of you. Talk about these feelings to your partner. Fear and anxiety can have a dampening effect on sexual activity. Learn and share. Try not to worry. Go slowly and give each other reassurance. If serious difficulties persist, please contact your doctor.

After any heart incident, you may experience a change in desire and/or sexual function for several reasons. One may be your medications. If you are having sexual difficulties and are taking medication for reducing anxiety, heart rate, or blood pressure, let your doctor know. Doses can often be changed or other drugs prescribed. Don't be alarmed, as these effects are not permanent.

Helpful tips which may conserve energy during sexual activity include:

1. Allow for plenty of time when engaging in sexual activities.
2. Avoid sexual activities when you are too tired.
3. Do not have sex when you are stressed, or when feelings of anger or resentment exist between you and your partner.
4. Do not attempt to have intercourse after a big meal or after having too much alcohol. A 2 to 3 hour wait is advised. It is also advised to limit alcohol intake to 1 to 2 oz. per day.
5. Keep the temperature comfortable, not too hot or not too cold.
6. Resume familiar positions that you have used before the heart attack that were comfortable and relaxing.
7. Experiment with other comfortable positions during intercourse that are less strenuous. (for example, side by side, facing each other, one behind the other, partner on top, etc.)
8. Avoid changes that are anxiety provoking.
9. A strange environment may not be the setting for sexual activities as it may increase stress on your heart.
10. Avoid sex positions that keep the person who had the heart attack on the arms for a long time.
11. Avoid sex with a new partner. This makes the heart work harder.
12. Avoid sexual relations if you anticipate strenuous activity of some type following intercourse without adequate time for rest between activities.
13. Anal intercourse, stimulants, such as amphetamines, and other drugs, such as marijuana and cocaine are not recommended due to their effect on the heart.

If you have been living with chest pain that requires nitroglycerin tablets you may also experience chest pain during sexual intercourse. Nitroglycerin, Inderal, or Isordil taken before intercourse frequently prevents any difficulty. You may have angina during sex as with other activities. If this occurs, take a nitroglycerin and rest for a while. If the pain does not go away or comes back often with intercourse, let your doctor know. If you have had open heart surgery, PTCA or Athrectomy or have never had chest pain in the past, chest pain with intercourse IS NOT normal. Contact your doctor immediately.

**PLEASE CONSULT YOUR DOCTOR IF YOU OBSERVE
ANY OF THE FOLLOWING SYMPTOMS:**

1. Rapid heart or respiratory rate persisting 15 minutes after intercourse.
2. Palpitations continuing 15 minutes after intercourse.
3. Chest pain during or after intercourse. (If the chest pain is not relieved by Nitroglycerin or if it is new chest pain and it is not relieved ~~within 15 minutes of resting~~, call 911 or the emergency number in your area.)
4. Extreme fatigue on the day following intercourse.

Remember: These are only guidelines. Your doctor may have more specific instructions depending on your situation.

MEDICATION INFORMATION

It is your right and responsibility to know about the medications which have been prescribed for you. You should know the names of the drugs you take, their purpose, special precautions and possible side effects. Before you leave the hospital, you will be given a list of your medications. The nurses and your doctor will review their uses and side effects. Please be sure to review this information as often as necessary prior to your discharge.

DO . . .

- . . . take your medication exactly as prescribed.**
- . . . take only the usual dose at the next regularly scheduled time if you should ever accidentally skip a dose.**
- . . . have your prescription renewed and/or refilled several days before your pills run out.**
- . . . keep your medicines in their original containers.**
- . . . inform both your doctor and your pharmacist of any drug allergies you may have.**
- . . . ask your doctor or pharmacist about taking medications which are as much as three to four months old (some medications lose their potency).**

DON'T . . .

- . . . take more pills than prescribed because you're "feeling worse" or less pills than prescribed because you're "feeling better."**
- . . . try to 'make up' the missed dose by taking extra pills the next time.**
- . . . wait until your pills are gone to try to make arrangements to renew the prescription.**
- . . . mix medications together in one bottle regardless of whether their sizes and shapes are different.**
- . . . purchase a non-prescription drug without checking with your physician or pharmacist regarding possible drug interactions.**
- . . . give your medicine to anyone else and never take a medicine prescribed for someone else.**

NITROGLYCERIN

If you are having angina and have Nitroglycerin tablets prescribed by your doctor for you to take:

- Stop what you are doing, sit down, and rest
- Place one Nitroglycerin tablet under your tongue and let it dissolve. (If there is not a tingling, or burning sensation under your tongue from the tablet, take another one immediately).
- Wait 5 minutes

If your angina has not gone away after taking the first Nitroglycerin tablet:

- Take a second tablet

If your angina has not gone away after taking the second Nitroglycerin tablet:

- Take a third tablet
- Wait 5 minutes
- **IF YOUR ANGINA HAS NOT GONE AWAY, GO TO THE EMERGENCY ROOM •**
- Store medicine in a tightly covered, brown colored container.
- Store away from the light and in a cool place (but not the refrigerator)
- Get a new supply approximately 3-6 months after opening the bottle
- Do not dissolve tablets in mouth while eating or drinking
- Always carry a small supply of the tablets with you

Let your doctor know how often you have angina and which activities cause angina. Even if Nitroglycerin gives complete relief, you should let your doctor know if your angina:

- Occurs with little or no exertion
- Requires more Nitroglycerin for relief
- Lasts longer than usual

Let your doctor know if taking Nitroglycerin cause a severe headache or severe light-headedness (mild headache and/or light-headedness is normal)

After Open Heart Surgery or PTCA ("balloon" surgery) it is not normal to have angina. Notify your doctor immediately if you have angina even if Nitroglycerin and/or rest bring relief.

Anticoagulant Therapy

How to take the medication

If your doctor has given you a prescription for an anticoagulant, this is to prevent clots from forming in your blood. It is important to take the medication exactly as ordered, since too much of the drug can cause bleeding and too little can cause clotting. For this reason, you must have blood tests done periodically to ensure your blood is clotting properly. If it is not, your doctor will change the dosage. Here are important guidelines for taking your medication:

1. Take your anticoagulant at the same time of day. If you are supposed to take it on alternate days, marking a calendar can help.
2. If you forget to take a dose, do not double up next time. Just take the next dose as scheduled. If you miss two doses, call your doctor.
3. Keep your appointments for blood tests.
4. Refill your prescription 1 week ahead so you don't run out.
5. Keep anticoagulants away from heat and cold.

Helping the medication work

Your diet, health, and other drugs can also affect the way anticoagulants work in your body. For this reason, follow these guidelines:

1. Eat only normal amounts of green leafy vegetables (spinach, broccoli, etc.). These foods have a high content of vitamin K, which helps your blood clot. However, too much vitamin K can interfere with the anticoagulant.
2. If you drink alcohol, limit the amount to one drink per day. Excessive alcohol can affect blood clotting.
3. Do not take aspirin or any drugs containing aspirin. Check with your doctor or pharmacist before taking over-the-counter drugs to be sure they do not contain aspirin or other substances that might affect blood clotting.
4. Do not take any supplements that contain vitamin K. If you take multivitamins or other supplements, check with your doctor or pharmacist to ensure they are safe.
5. Many prescription drugs can interfere with anticoagulants. Take other prescription medications only as prescribed by your doctor.
6. If you develop diarrhea, vomiting, or fever that lasts longer than 24 hours, call your doctor.

Safety first

While you are taking anticoagulant medication, your blood will clot more slowly if you are injured. Therefore, you should take precautions against even minor cuts and bruises. In addition, you must be alert for signs that you may be bleeding internally. The following safety measures will help prevent problems:

1. Use a toothbrush with soft bristles.
2. Avoid putting toothpicks or other sharp objects in your mouth.
3. Protect your feet from injury. Don't walk barefoot, and don't trim corns or calluses yourself. See a podiatrist if necessary.
4. Inform all doctors (for example, dentist, gynecologist) that you are taking anticoagulants *before* receiving any treatment.
5. Avoid using cutting tools or other sharp objects that could result in injury.
6. Avoid rough sports.
7. Protect yourself from falling. Put a nonskid mat in your bathtub or shower, remove hazardous throw rugs, and wear low-heeled shoes with nonslip soles.
8. If you cut yourself, keep pressure on the injury for 10 minutes. If the bleeding doesn't stop, call your doctor immediately.
9. If you are bruised, draw a line around the margin. If the bruise enlarges, call your doctor.
10. Check urine and stools daily. Call the doctor if you see pink or red urine or black stools.
11. Call your doctor if you suddenly develop excessive nosebleeds, bleeding gums, purplish or reddish spots on your skin, unusual vaginal bleeding or excessive menstrual flow, or bleeding hemorrhoids.
12. Carry either an identification card or a Medic-Alert bracelet at all times. It should include the name of the anticoagulant you're taking and your doctor's name and phone number.
13. If you are planning a long trip, inform your doctor so he or she can arrange for the blood tests to be done while you are away.

FOR WOMEN: Coumadin is a drug that crosses the placenta and can cause serious birth defects. Therefore you should take precautions to avoid pregnancy while on this drug. If you suspect that you are pregnant, notify your doctor immediately.

Diet Guidelines For A Healthy Heart

These guidelines offer a brief summary of three diets for a healthy heart. If your doctor has prescribed one of these diets for you, you need more complete information. The American Heart Association has free pamphlets available that explain the low-cholesterol and low-sodium diets in detail.

Read the labels

Labels on packaged foods make it easier to select healthier products, but you must understand how to interpret them. If the product makes any nutritional claim, the label lists two categories of information. "Nutritional Information per Serving" lists the amount of calories, protein, carbohydrates, fat, and sodium (salt) in one serving. It also tells you how much is considered *one* serving, which can be confusing. For example, one normal serving of milk is 1 cup, or 8 ounces. If you pour milk into a tall drinking glass, however, you may have 10 to 16 ounces.

The second category is "Percentage of U.S. Recommended Daily Allowances (U.S. RDA)" for protein, vitamins, and minerals in each serving. Remember that these numbers are percentages, so if the label on a milk carton says "Protein 20," this means that 1 cup provides 20% of the protein you need each day.

Packaged foods that don't claim to provide nutrition don't have these labels, but they do list the ingredients. The largest quantity is listed first and the smallest amount last. For example, a jar of sweet pickles lists the ingredients as "Cucumbers, water, corn syrup, vinegar, peppers, salt, natural and artificial flavors, preservatives, and artificial coloring." This tells you cucumbers are the main ingredient, water the next highest ingredient, and so forth.

Of course, fresh meats, fish and seafood, fruits, and vegetables do not carry labels. You need to learn which ones are the best for your diet and which ones to avoid.

Low-cholesterol diet

The average American consumes a large amount of cholesterol every day: men about 500

milligrams (mg) and women about 320 mg. A low-cholesterol diet limits cholesterol intake to less than 300 mg a day. To manage this, only 30% (or less) of the total calories you eat every day should come from fat. In addition, most of this fat should come from **polyunsaturated fat**, the "good" fat that helps lower blood cholesterol.

How can you tell the difference between "good" and "bad" fat? Polyunsaturated oil is usually liquid and comes from vegetables such as corn, cottonseed, soybean, sunflower, and safflower. Peanut, canola, and olive oil are **monounsaturated fats** that are neutral and do not add cholesterol. The "bad" fats are **saturated fats**, which harden at room temperature and are found in meat, dairy products made from whole milk or cream, solid and hydrogenated shortening, coconut oil, palm oil, and cocoa butter.

Here are some tips for avoiding too much saturated fat:

1. Eat less meat. Adults need about 5-7 ounces of meat, poultry, fish, or seafood a day.
2. Avoid "prime grade" or heavily marbled meats, corned beef, pastrami, regular ground beef, frankfurters, sausage, bacon, lunch meat, goose, duck, or organ meats. Select very lean cuts of meat. Trim skin off chicken and turkey.
3. Avoid fried meat, chicken, fish, or seafood. Use a rack to drain off fat when broiling, baking, or roasting.
4. Eat no more than two whole eggs (yolks and whites) per week. (Egg whites are allowed, since they contain little cholesterol.)
5. Avoid dairy products containing more than 1% milk fat, such as butter, sour cream, cream cheese, creamed cottage cheese, and most natural and processed cheeses. Select milk products that contain only up to 1% milk fat. Use polyunsaturated margarine.
6. Avoid packaged foods or bakery items that contain egg yolks, whole milk, saturated fats, cream sauces, or butter. Select only those that have a low-cholesterol rating.
7. Avoid cashews, coconut, pistachios, and macadamia nuts. Most other types of vegetables, fruits, nuts, and seeds are low in cholesterol.

Low-sodium diet

The average American consumes about 1 to 2 teaspoons of salt every day, 6 to 18 grams, and most of this salt is added at the table. Your body needs only about 0.5 gram of salt a day. Since most foods that come from animals (meat, poultry, fish, eggs, milk) are naturally high in sodium, your body's requirements are easily met without adding salt to your food.

What is the difference between salt and sodium? Sodium keeps the right amount of water in your body, so some is necessary for good health. However, too much sodium causes water retention, which raises your blood pressure.

It may take a little time to get used to a low-sodium diet, particularly if you are accustomed to eating highly salted foods. Start by eliminating salt from the table. Use spices and herbs that contain no sodium to add flavor, and try some of the new salt substitutes that contain no sodium.

Many packaged and processed foods are now marketed as low sodium, including cheeses, luncheon meats, canned and packaged food, and even snacks such as potato chips. However, beware if the package reads "reduced sodium"; the sodium content may still be too high. If you are not sure of a product, read the ingredients carefully and look for the words "salt, sodium, soda, baking powder, monosodium glutamate (MSG), and disodium phosphate." If you are still in doubt, don't eat it.

Here are some tips for eliminating the "hidden" sodium from your diet:

1. Avoid cured or smoked meat, poultry, or fish. These include ham, bacon, corned beef, regular luncheon meats, sausage, commercially frozen fish, canned fish packed in oil or brine, and canned shellfish.
2. Avoid frozen, canned, and dehydrated main-dish foods such as pizza, TV dinners, spaghetti, chili, stews, and soups.
3. Avoid canned vegetables and vegetable juices.
4. Avoid cheese, buttermilk, and cocoa mixes.
5. Avoid commercial sauces (catsup, chili sauce, steak sauce, soy sauce), mayonnaise, salad dressing, olives, pickles, meat tenderizers, and seasoning salts.

Low-calorie diet

Losing weight (or keeping weight off) is an important part of controlling blood pressure and reducing blood cholesterol levels. Your doctor, a dietitian, or a nutritionist can advise you about calories, since this depends on your how active you are, your height, and your physical condition.

The low-cholesterol diet is an excellent basis for a weight loss program. Fats are high in calories, and the low-cholesterol diet is essentially a low-fat diet. For example, 1 cup of whole milk contains 150 calories, but the same amount of skim milk has only 86 calories. Also, because it emphasizes fresh fruits and vegetables and discourages processed foods, the low-cholesterol diet is nutritionally well balanced.

Weight loss should be gradual. Remember: it probably took you several years to put the pounds on, so expect it to take several months to lose them.

Here are some other tips for helping you lose weight:

1. Divide your daily calorie allowance into several small meals a day, instead of eating one or two large meals.
2. For between-meal snacks, choose high-fiber, low-calorie foods such as apples or celery. High-fiber foods make your stomach feel full quicker.
3. For between-meal hunger pangs, fool your stomach with a glass of ice water, hot tea, or calorie-free soda.
4. If you eat when you're bored, busy yourself to take your mind off food. Change your activity—do something you enjoy, take a walk, or take a shower.
5. If you eat when you are "blue," try the "buddy system" with a dieting friend. Agree to call each other for help whenever you're tempted to indulge.
6. Regular exercise that burns calories (walking, jogging, swimming, etc.) is the magic ingredient in many people's exercise programs. Check with your doctor first about the safest program for you.
7. "Too good to be true" weight loss programs are just that—they are either worthless or dangerous. Follow a diet that has been medically recommended and skip the "fad" diets.

WHAT IS CHOLESTEROL? _

One of the five major risk factors for coronary artery disease is an elevated level of cholesterol in the blood. (Smoking, high blood pressure, diabetes mellitus and a family history of heart disease are the other four.)

WHAT IS CHOLESTEROL?

Cholesterol is a white, odorless, fat-like substance that is a basic ingredient of the human body. All animals, including humans, have the ability to produce cholesterol.

WHY DO WE NEED CHOLESTEROL?

Cholesterol is a vital part of the body's chemistry. It is used to produce certain hormones, cell membranes (the protective coverings of cells), Vitamin D, and bile (digestive juices.)

HOW DO WE GET "TOO MUCH"?

Your body has the ability to make all the cholesterol it needs. A diet that contains animal products, however, also supplies cholesterol to the body. The body must then slow down its production of cholesterol. Unfortunately, the body's balancing mechanism may be faulty and the cholesterol rises to an abnormally high level. This may be due to an inherited problem and/or due to our life-style.

HOW CAN WE CHANGE OUR LIFE-STYLE?

We can lower our blood cholesterol level by making dietary changes such as reducing the amount of fat we eat, especially saturated fat, and the amount of foods we eat that are high in cholesterol. Also, reducing the total calories we eat leads to weight loss which also lowers blood cholesterol levels. Exercise and weight loss also increases HDLs, the "good" cholesterol.

WHAT IS "GOOD" CHOLESTEROL AND WHAT IS "BAD" CHOLESTEROL?

HDL (High Density Lipoprotein), or "good" cholesterol, is thought to carry cholesterol away from the cells and takes it to the liver where it is broken down and excreted. LDL (Low Density Lipoprotein), or "bad" cholesterol, carries cholesterol to the body's cells where it can be woven into the covering (or membranes) of the cells and deposited on arteries.

WHAT CAN HAPPEN WHEN CHOLESTEROL IS STORED IN THE BODY'S CELLS?

Deposits of cholesterol and other fats and blood products can build up on the inner layers of the walls of our arteries. The term used for this build up is "atherosclerosis." As the buildup (plaque) grows, the artery narrows and the flow of blood to the heart muscle is reduced. When the blood flow is completely blocked a heart attack occurs. Chest pain (angina pectoris) is a warning signal that blood flow and oxygen supply to the heart is reduced. Blockage in a blood vessel in or leading to the brain can cause a stroke.

WHAT SHOULD MY BLOOD CHOLESTEROL COUNT BE?

Unfortunately, there are no guarantees that lowering your cholesterol will keep you from having a heart attack or stroke. Not everyone with a high cholesterol level will have heart disease. Not everyone with low cholesterol will be protected. But generally, studies have shown that lowering the cholesterol level will reduce your risk.

Risk for heart disease is lowest when cholesterol levels are below 200 mg./dl. The risk is considered borderline high when levels are in the 200 to 239 mg/dl range. The risk is high when cholesterol levels are above 240 mg/dl. Keep in mind that no matter what your cholesterol level is, the more risk factors for heart disease you have, the greater are your chances for developing heart disease. The risk factors include high blood pressure, cigarette smoking, diabetes, obesity, lack of exercise, stress, a low HDL cholesterol level, and a high LDL cholesterol level. Additional risk factors include a family history of heart disease, the male gender, the black race, and increasing age.

WHAT SHOULD MY TRIGLYCERIDE, HDL, AND LDL LEVELS BE?

In general, triglycerides, or fatty substances in the blood, should be less than 100-120 mg/dl, HDL's should be greater than 35mg/dl, and LDL's should be less than 130mg/dl. The ratio of total cholesterol to HDL is more important. This ratio should be approximately below 4.0. (Divide Total Cholesterol by HDL Cholesterol to determine this ratio.)

DIETARY RECOMMENDATIONS:

1. Limit food high in cholesterol and fat. These include meat, whole milk, cheese, cream, sour cream, ice cream, sausages, luncheon meats, frankfurters, egg yolks, butter, mayonnaise, and lard.
2. Try to limit red meats (beef, lamb and pork) to 3 times a week. In place of red meats and organ meats, choose low fat meats like skinless chicken or turkey, fish, and low fat ham (95% fat free). Limit portions to the size of a deck of cards (3 oz.) and no more than 6 oz. of meat per day.
3. Choose low fat milk (skim or 1%) and low fat cheeses like ricotta, gouda, mozzarella, and cheese made from skim milk. It is good to eat more fruits and vegetables, and starchy foods like cereal, rice, breads, pasta, whole grains, dried peas, and beans. Soluble fiber (found in oat and rice bran as well as fruits and vegetables) also helps to lower blood cholesterol levels.
4. Read labels. Avoid foods that contain saturated fats like palm oil, palm kernel oil, coconut oil, lard, partially hydrogenated vegetable oil, and cocoa butter.
5. The American Heart Association recommends to restrict total fat to less than 30% of total calories, restrict saturated fat to less than 10% of total calories, and restrict dietary cholesterol to less than 300 mg per day.

ADDITIONAL READING MATERIAL:

- * Controlling Cholesterol by Kenneth H. Cooper, M.D., M.P.H.
- The New Aerobics by Kenneth H. Cooper, M.D., M.P.H.
- Aerobics for Women by Kenneth H. Cooper, M.D., M.P.H.
- Aerobics for Kids by Kenneth H. Cooper, M.D., M.P.H.
- Controlling Hypertension by Kenneth H. Cooper, M.D., M.P.H.
- Aerobics Program for Total Well Being by Kenneth H. Cooper, M.D., M.P.H.
- Choices for a Healthy Heart and Don't Eat Your Heart Out Cookbook and Controlling Your Fat Tooth by Joseph C. Piscatella
- * Cholesterol. Your Guide for a Healthy Heart by the Editors of Consumer Guide.
- The New American Diet System by Sonja & William Connor
- Children and Cholesterol by Robert E. Kowalski
- Count Out Cholesterol by Art Ulene
- The New Pritikin Program by Robert Pritikin (there are many Pritikin books available)
- The Cooper Clinic Cardiac Rehabilitation Program by Neil F. Gordon, MD, and Larry W. Gibbons, MD.
- Dr. Dean Ornish's Program for Reversing Heart Disease
- The New Fit-or-Fat by Covert Bailey
- Fit or Fat Target Recipes by Covert Bailey & Lea Bishop
- The Fit or Fat Woman by Covert Bailey & Lea Bishop
- The Fit-or-Fat Target Diet by Covert Bailey
- Cooking Light Magazine
- American Diabetes Association Cookbooks
- Is It Worth Dying For? How to Make Stress Work for You- Not Against You by Robert S. Eliot, MD, and Dennis L. Breo
- The Joy of Stress. How to Make Stress Work for You by Peter G. Hanson, MD.

* Sources

CHOLESTEROL HIGHWAY

Appendix L-25

The following diagram illustrates the route taken by cholesterol as it moves around your body, using the bloodstream as its "highway."

Please refer to the reverse side for a glossary of key terms related to cholesterol, diet, and heart disease.



One of the objectives of a low-fat diet is to help lower your LDL cholesterol to a "goal" level. Ask your doctor what your appropriate LDL cholesterol goal is.

PLAIN TALK ABOUT ... HANDLING STRESS

You need stress in your life! Does that surprise you? Perhaps so, but it is quite true. Without stress, life would be dull and unexciting. Stress adds flavor, challenge, and opportunity to life. Too much stress, however, can seriously affect your physical and mental well-being. A major challenge in this stress-filled world of today is to make the stress in your life work for you instead of against you.

Stress is with us all the time. It comes from mental or emotional activity and physical activity. It is unique and personal, in fact, that what may be relaxing to one person may be stressful to another. For example, if you are an executive who likes to keep busy all the time, "taking it easy" at the beach on a beautiful day may feel extremely frustrating, nonproductive, and upsetting. You may be emotionally distressed from "doing nothing." Too much emotional stress can cause physical illness such as high blood pressure, ulcers, or even heart disease; physical stress from work or exercise is not likely to cause such ailments. The truth is that physical exercise can help you to relax and to handle your mental or emotional stress.

Hans Selye, M.D., a recognized expert in the field, has defined stress as a "non-specific response of the body to a demand." The important issue is learning how our bodies respond to these demands. When stress becomes prolonged or particularly frustrating, it can become harmful-causing distress or "bad stress." Recognizing the early signs of distress and then doing something about them can make an important difference in the quality of your life, and may actually influence your survival.

REACTING TO STRESS

To use stress in a positive way and prevent it from becoming distress, you should become aware of your own reactions to stressful events. The body responds to stress by going through three stages: (1) alarm, (2) resistance, and (3) exhaustion.

Let's take the example of a typical commuter in rush-hour traffic. If a car suddenly pulls out in front of him, his initial alarm reaction may include fear of an accident, anger at the driver who committed the action, and general frustration.

His body may respond in the alarm stage by releasing hormones into the bloodstream which cause his face to flush, perspiration to form, his stomach to have a sinking feeling, and his arms and legs to tighten. The next stage is resistance, in which the body repairs damage caused by stress. If the stress of driving continues with repeated close calls or traffic jams, however, his body will not have time to make repairs. He may become so conditioned to expect potential problems when he drives that he tightens up at the beginning of each commuting day. Eventually, he may even develop a physical problem that is related to stress, such as migraine headaches, high blood pressure, backaches, or insomnia. While it is impossible to live completely free of stress and distress, it is possible to prevent some distress as well as to minimize its impact when it can't be avoided.

HELPING YOURSELF

When stress does occur, it is important to recognize and deal with it. Here are some suggestions for ways to handle stress. As you begin to understand more about how stress affects you as an individual, you will come up with your own ideas of helping to ease the tensions.

Try physical activity. When you are nervous, angry, or upset, release the pressure through exercise, or physical activity. Running, walking, playing tennis or working in your garden are just some of the activities you might try. Physical exercise will relieve that "up tight" feeling, relax you, and turn the frowns into smiles. Remember, your body and your mind work together.

Share your stress. It helps to talk to someone about your concerns and worries. Perhaps a friend, family member, teacher, or counselor can help you see your problem in a different light. If you feel your problem is serious, you might seek professional help from a psychologist, psychiatrist, social worker, or mental health counselor. Knowing when to ask for help may avoid more serious problems later.

Know your limits. If a problem is beyond your control and cannot be changed at the moment, don't fight the situation. Learn to accept what is, for now, until such time when you can change it.

Take care of yourself. You are special. Get enough rest and eat well. If you are irritable and tense from lack of sleep or if you are not eating correctly, you will have less ability to deal with stressful situations. If stress repeatedly keeps you from sleeping, you should ask your doctor for help.

Make time for fun. Schedule time for both work and recreation. Play can be just as important to your well being as work; you need a break from your daily routine to just relax and have fun.

Be a participant. One way to keep from getting bored, sad, and lonely is to go where it's all happening. Sitting alone can make you feel frustrated. Instead of feeling sorry for yourself, get involved and become a participant. Offer your services in neighborhood or volunteer organizations. Help yourself by helping other people. Get involved in the world and the people around you, and you'll find they will be attracted to you. You will be on your way to making new friends and enjoying new activities.

Check off your tasks. Trying to take care of everything at once can seem overwhelming, and, as a result, you may not accomplish anything. Instead, make a list of what tasks you have to do, then do one at a time, checking them off as they're completed. Give priority to the most important ones and do those first.

Must you always be right? Do other people upset you particularly when they don't do things your way? Try cooperation instead of confrontation; it's better than fighting and always being "right." A little give and take on both sides will reduce the strain and make you both feel more comfortable.

It's OK to cry. A good cry can be a healthy way to bring relief to your anxiety, and it might even prevent a headache or other physical consequence. Take some deep breaths; they also release tension.

Create a quiet scene. You can't always run away, but you can "dream the impossible dream." A quiet country scene painted mentally, or on canvas, can take you out of the turmoil of a stressful situation. Change the scene by reading a good book or playing beautiful music to create a sense of peace and tranquility.

Avoid self-medication. Although you can use prescription or over-the-counter medications to relieve stress temporarily, they do not remove the conditions that caused the stress in the first place. Medications, in fact, may be habit-forming and also may reduce your efficiency, thus creating more stress than they take away. They should be taken only on the advice of your doctor.

THE ART OF RELAXATION

The best strategy for avoiding stress is to learn how to relax. Unfortunately, many people try to relax at the same pace that they lead the rest of their lives. For a while, tune out your worries about time productivity, and "doing right." You will find satisfaction in just being, without striving. Find activities that give you pleasure and that are good for your mental and physical well-being. Forget about always winning. Focus on relaxation, enjoyment, and health. If the stress in your life seems insurmountable, you may find it beneficial to see a mental health counselor. Be Good To Yourself.

Written by Louis E. Kopolow, M.D.

DHHS Publications No. (ADM) 91-502

Printed 1977 Revised 1983

Reprinted 1985, 1987, 1991

STRESS AWARENESS

Becoming aware of stress is a two-fold process. First, try to recognize and identify the things in your life that cause you to feel stress. These stressors may be minor hassles, major lifestyle changes, or a combination of both. Then, once you realize what causes your stress, try to focus on how your body feels under stress. For example, you may know that getting caught in

traffic is one of your stressors, but do you know how your body reacts? Are your muscles tense? Is your heart beating faster? Knowing your stressors, and listening to what your body can tell you, can help you become aware of your own individual stress reaction. This awareness, in turn, is the first step in finding solutions to the problem.

RECOGNIZING THE PROBLEM



Minor hassles are those daily annoyances that are a part of day-to-day life. Traffic jams, missed buses, lost car keys, and petty disagreements are rarely earth-shattering events, but their side effects can accumulate. Even these minor irritations can lead to chronic, negative stress and health-related problems, so be aware of situations that "get your blood pressure up."



Major changes are any changes—positive or negative—that affect your lifestyle. Positive changes, like the birth of a new baby or a promotion, can be just as stressful as negative changes such as the loss of a loved one or being laid off from a job. Most major lifestyle changes require you to adapt to new or unknown situations, which in itself can be stressful.



Stress overload can occur when you find yourself faced with situations beyond your control that have combined to an unmanageable level. At home or in the workplace, there may be times when you feel pulled in so many directions at once that you're not sure what to deal with first. Try to accept the fact that it's virtually impossible to control all of life's variables.



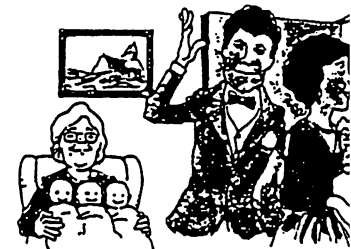
Feeling helpless often results when the cause of your stress is not easily recognizable or manageable. If you (or someone you know) feel as if there's "no way out," or feel overwhelmed or depressed, seek out professional help. Your family physician, your employer, or your state and local health agencies can refer you to a specialist who can help you to cope with these feelings.

FINDING SOLUTIONS

Avoiding hassles can help you to eliminate some of the minor irritations that lead to chronic, negative stress. If rush-hour traffic "drives you up a wall," why not join (or start) a carpool, or try taking public transportation? If rushing to get to work on time makes you anxious, try getting up earlier, or look into taking a course in time management.



Controlling lifestyle change isn't as difficult as it may sound. When one aspect of your life changes (positively or negatively), do what you can to limit other changes. If you've become a new parent or started a new career, for example, make an effort to continue doing the things that bring you pleasure—don't change your entire lifestyle just because one of the variables is different.



Take a break when your stressors combine to the "I can't cope" level. Sometimes you need a little distance from your problems to figure out how to deal with situations effectively. Take a few minutes by yourself to calm down. Sit down, relax, and then decide what needs to be done immediately, what can wait until later, and so on. Take it one step at a time!



Finding help is the best solution when you feel overwhelmed or unable to deal with stress on your own. First, you may wish to see your doctor who can help to rule out any medical reasons for your problem. Then, if no physical problem exists, consider seeing a professional counselor who can help you understand your feelings. Even when you feel "helpless," remember: help is available.



MINI-STRATEGIES TO DEAL WITH STRESS!

1. SHOULDER ROLLS:

Close your eyes and think of all your tension being in the head area. Let your face relax. Let jaw drop. Take three slow, deep breaths and hear the air. Relax your arms and hands. Slowly lift your shoulders as high as possible. Push them back, push them down, push them forward. Make it a smooth, strong roll. Roll your shoulders three times back and three times forward. It feels great.

2. HEAD ROLL:

Close your eyes, think of water swirling in a slow whirlpool or the surface of a calm lake. See the water. Let your head roll slowly on a loose, (relaxed) neck.

Roll it slowly to the right four times and then to the left four times. Don't think or worry about the creaking and popping; nearly everyone has that noise in their neck, too. Think only of the lake and water sounds.

3. SIDE STRETCH:

While sitting up straight, put your open hands behind your head with your elbows out to each side. Then pull in your stomach and bend slowly at the waist hard to the right, then hard to the left. Go to each side three times, then stretch up as tall as you can, (reach for the ceiling), and hold it for five slow counts.

Make the movements slow and make them stretch hard. Keep your eyes closed and concentrate on saying something pleasant to the very next person you see. Relax and speak to the next person who meets your eyes. Pleasant!

While standing, you can do the same thing and it actually feels even better, but hold the hips still.

4. TALL STRETCH:

Stand up with the feet comfortably apart, put your hands high over your head with your fingers interlaced inside out so your palms face the ceiling. Close your eyes and think tall. Push up - reach for the ceiling - go up on your toes and reach hard for the ceiling. Stretch! Stretch! for five counts. Now bend forward with your arms and your head hanging down. Relax, and hang loose, head down for four counts.

Stretch to the ceiling again for five counts, followed by hanging for four counts.

5. HAMSTRING AND LOWER BACK STRETCH:

Sit flat on the floor or sit on the front edge of your chair. Put your legs out straight, comfortably apart. Now put your hands on the side of your thighs and slowly slide them towards your feet. Go as far down your legs as feels comfortable and stretch as far as feels comfortable. The stretch should feel good in your lower back and a bit strained in the hamstring, but good. Hold to a slow count of five. Come back up with your hands on your thighs. Repeat it three times.

6. FETAL STRETCH:

Lie flat on the floor. Pull your knees to your chest and wrap both arms around your legs. Pull everything tight. Hold it for three seconds. Stretch hard to full length with arms high over head and your legs out straight with toes pointed and hold it for three seconds. Finally, close your eyes and totally relax with the arms and legs in a straight position. Lie for at least fifteen seconds and concentrate on WHY YOU ARE IMPORTANT—to your job, to your mate, or to your family. Be positive, because YOU ARE A WINNER!

7. HEAVY AND WARM:

Sitting or lying, close your eyes and imagine that your feet and legs are getting heavier and heavier and warmer and warmer. It's almost as if you are wearing heavy boots. Feet and legs, heavy and warm, heavy and warm. CONCENTRATE! Heavy and warm, heavy and warm, heavy and warm.

8. BREATHING YOUR TENSIONS AWAY:

Gently focus your attention on your feet. As you take in a slow, deep breath, imagine collecting all of your tensions in your feet and legs, breathing them into your lungs and expelling them as you exhale. Then, with a second deep breath, collect all of the tensions in your trunk, hands and arms, and expel them as you exhale. Next, collect all of those tensions in your shoulders, neck and head and expel them. Repeat the entire strategy. Now, sit quietly for 10 seconds breathing comfortably.

9. YOUR PLACE:

With your eyes closed, take a moment to create in your mind an ideal spot for relaxation. You can make it any place, real or imagined. See yourself in comfortable clothes, in your ideal spot or situation. Once you have created it, go back there for 15 seconds or so whenever you feel the need to escape.

10. BREATHING AWAY YOUR STRESS:

With your eyes closed, focus on the tip of your nose. As you breathe in, see and feel the air coming out of the tip of your nostrils. As you breathe out, see and feel the air coming out of the tip of your nostrils. Perhaps you can even feel that the air coming in is cooler than the air going out. Just be aware of air in, air out as it passed the tip of your nose and take your mind off everything else. Do it for 10 seconds. With practice you will find the air is the only thing on your mind and it tends to break up the stress cycle.

11. HANG LOOSE:

Sit comfortably and close your eyes. While sitting tall and straight, take a deep breath, pulling the rib cage up and out and pulling the shoulders up. Hold it for a slow count of three. Let the air out all at once and allow your shoulders, head and jaw to fall to a hanging, completely relaxed state. Hang loose and breathe easily for a count of five. Concentrate on the sound of your breath.

12. STRESS AND MUSCLE RELEASE

While sitting up straight, but comfortably, tense your body progressively from toe to head while breathing easily. Tense the feet and calves, add the thighs and hips. Continue with the stomach and chest, adding the hands, arms and shoulders. Now, the neck and head. Close your eyes and take a deep breath. Hold all of your muscles tense for a count of five. Concentrate on confining all of your stress in those muscles. Exhale completely now! Turn all of the muscles loose. Let all of the stress go with them. Turn it all loose for a full 15 seconds, breathing comfortably. Concentrate on each muscle from toe to head as you make a conscious effort to totally release each muscle. They should feel heavy and warm.

13. WAKE UP POSITIVE:

When you wake up every morning, clap your hands and shout aloud, "It's going to be a great day!" MEAN IT. SET OUT TO MAKE IT A GREAT DAY.

14. SHAVE A WINNER (OR WASH HER FACE):

Look yourself straight in the eye and say, "You are a winner and this is your day."

15. STOP ANGER:

Being mad hurts only you, or maybe someone who loves you.

Have you ever had a fight with your mate and an hour or so later you are still mad? Maybe a day or week later you are still angry. But when you really think about the problem, it is not worth the knot in your stomach, the frustration or the hard feelings. Decide to end it. Simply say aloud, "This is not fun. I'm counting to ten and then I am not going to be mad any more." Count to ten and close it off.

If you were wrong, add "I'm sorry." If you were not wrong, you can add, "I'm sorry I got angry."

VITA

Susan Susskind Wilkinson was born in Alexandria, Louisiana, on January 9, 1956, the daughter of Rachel Romano Susskind and Harold A. Susskind. After completing her work at Austin High School, Austin, Texas, in 1974, she entered The University of Texas at Austin, Texas. In January of 1977 she began her nursing coursework at The University of Texas Health Science Center at San Antonio School of Nursing. She received the degree of Bachelor of Science in Nursing in December, 1978. After the completion of her degree, she completed a Critical Care Nurse Internship with the Bexar County Hospital District. During the following years she was employed in various areas of nursing including MICU, CICU, PACU, and Cardiac Rehabilitation. In June, 1992, she entered the graduate program in Adult Health Nursing at Incarnate Word College.

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