

THE EFFECTS OF BEHAVIOR MODIFICATION COUNSELLING AND RELAXATION
TRAINING ON SYMPATHETIC NERVOUS SYSTEM AROUSAL AND EXPRESSION
OF ANGER/HOSTILITY IN POST MYOCARDIAL INFARCT PATIENTS.

by

© Linda Catherine Turner

A thesis
presented to the University of Manitoba
in partial fulfillment of the requirements
for the degree
Master in Nursing
in
the School of Nursing
Winnipeg, Manitoba

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ISBN 0-315-51566-X

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LINDA CATHERINE TURNER

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
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MASTER OF NURSING

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January 19, 1989

Dr. Theresa George
Chairperson
Ethical Review Committee

Dear Dr. George:

Re: Thesis of Ms. L. Turner

Please be advised that the title of my thesis has been changed from: " The effects of behavioral modification counselling and relaxation training with biofeedback on sympathetic nervous system arousal and expression of anger/hostility in post myocardial infarction patients " to " The effects of behavior modification counselling and relaxation training on sympathetic nervous system arousal and expression of anger/hostility in post myocardial infarct patients ".

This is because the biofeedback portion of the research was not carried out. This change has been discussed with my thesis committee. The members of my committee are: Dr. L. Degner, Dr. E. Schilder, Dr. M.P. Janisse, and Dr. N.S. Dhalla. They agree with the change.
Thank you.

Yours sincerely.

Linda C. Turner

REH-FIT

Telephone: (204) 453-0931

The Kinsmen Reh-Fit Center

*1390 Taylor Avenue
Winnipeg, Manitoba
R3M 3V8*

November 24, 1987

Ms. Linda Turner

Winnipeg, Manitoba

Dear Ms. Turner:

Your submitted proposal for masters thesis at the Reh-Fit Center has been accepted on the following conditions:

1. A copy of the member's consent form be made available for the Reh-Fit Chart.
2. An abstract, written in laymen's terms, of the results of the study be given to the Reh-Fit Center following completion of the research. Material from this abstract may be used by Reh-Fit for internal purposes only.
3. Submission of written approval from the University of Manitoba Ethics Committee.

Your contact person at the Center will be Maureen Grace. Please contact her to make arrangements for recruitment of participants for your study.

Thank you for your interest in the Reh-Fit Center. We are looking forward to working with you and wish you the best in your endeavours.

Sincerely,

Don Fletcher
Executive Director
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To my parents - Letitia - whose love and support has helped me through out, and

Clifford - whose spirit has been with me since his death in 1967.

A human being is part of the whole, called by us "universe", a part limited in time and space. We experience ourselves, our thoughts and feelings, as something separated from the rest, a kind of optical delusion of consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us. Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty.

Albert Einstein

ACKNOWLEDGEMENTS

I would like to thank my thesis committee for their encouragement, support and guidance. I deeply appreciate the help of Dr. L. Degner, whose enthusiasm for nursing research helped me through many difficult times. I am also deeply grateful to Dr. E. Schilder, whose perspective on reality gave balance to my work. I very much appreciate the help of Dr. N. Dhalla for his expertise in the physiology of the cardiovascular system. I would also like to thank Dr. M. Janisse for his expert guidance through the mysteries of the psychological literature and his expertise in working with Type A individuals.

This study could not have been completed without the financial and technical assistance offered by Dr. N. Dhalla and his laboratory staff, especially Dr. Ken Dhalla. I am deeply grateful to Dr. Beamish for his assistance in interpreting the electrocardiographic tracings. I would also like to thank Peggy Holt for her patience in teaching me electrocardiographic analysis. I am extremely grateful to Jeff Sloan for his assistance with the lengthy statistical analysis.

I would like to thank the Reh-Fit Centre and staff, in particular Maureen Grace and Don Fletcher for welcoming me into their setting and facilitating the completion of this project. I would also like to thank the laboratory personnel at the Reh-Fit for teaching me how to complete electrocardiographic tracings.

I would like to thank my friends and family for their support through out this project. In particular, I would like to thank Laurie A. Thompson for her friendship and understanding through many a dreary moment.

Finally, I would like to thank the participants in this study for taking the time necessary to complete the many requirements. Without them, all would have been for naught.

ABSTRACT

This research investigated the effects of behavior counselling and relaxation training in post myocardial infarct patients. The conceptual framework used was that of Strelau, who presented an individual differences approach to the concept of stress.

The research design was experimental using a pre-test, post-test, and a control group. A non-probability convenience sample was obtained from a cardiac rehabilitation program, and randomly assigned to groups. Subjects in the experimental group (N=29) received 5 one and a half hour sessions over a period of 5 weeks. In addition, they were to practice relaxation daily for 20 minutes. The control group (N=14) received no treatment.

Paired t-test on before and after variables revealed the following. There was no difference in level of serum catecholamines ($p=.60-.98$). Serum catecholamines were, however significantly higher than resting values for normal human subjects (p epinephrine $=.008$, p norepinephrine $=.02$). Blood pressure did not decrease significantly at follow-up, though when individuals practiced relaxation training for an additional 5 weeks, there was a trend towards reduction. (p systolic $=.11$, p diastolic $=.25$). Females demonstrated a mean systolic increase of 10.80 mm hg and a mean diastolic increase of 10.80 mm hg, whereas males demonstrated a mean decrease of 3.00 mm hg systolic and a mean decrease of .83 mm hg diastolic. Electrocardiographic variables revealed a significant improvement in experimental ($p=.001$) subjects.

Trait anxiety decreased in the entire experimental group ($p=.05$). When males and females were analyzed separately, males decreased significantly ($p=.007$), whereas females did not ($p=.67$). Trait anger was not reduced in the overall group, but when males and females were analyzed separately, females showed a significant reduction ($p=.02$).

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Chapter I

STATEMENT OF THE PROBLEM

Cardiovascular disease (CVD) has been described as " the worst epidemic ever to strike Canadians " (Nicholls, Nair, MacWilliams, & Moen, 1986). This disease has been the leading cause of death for the past several decades in Canada, accounting for close to half of all deaths each year. In people under the age of 70, 255,000 years of potential life were claimed by CVD in 1982.

CVD may be divided into several major components: ischemic heart disease or coronary heart disease (CHD), cerebrovascular disorders, hypertension, arterial disease, and other vascular disorders. Coronary heart disease and cerebrovascular disorders were respectively the second and third leading cause of hospitalization in Canada during 1982. Together they accounted for 3.4 million days in hospital for males, and 4 million for females (Nicholls et al., 1986). At a cost of \$630 per patient per day in an acute care bed, the financial burden alone of CVD during 1981 was \$4.7 billion dollars. Canadians may soon be unable or unwilling to pay such staggering health care costs. We need to plan now to alter the future.

In studies of CVD, Canada presently places eleventh among the 15 countries studied. Romania had the leading mortality due to CVD. The lowest rates were found in Japan and France. Despite the epidemic proportion of CVD in our country, death rates have been steadily

declining since 1950. At first this decline was thought to be a spurious statistical result, and was viewed with skepticism. It is now believed that decline in the death rate is real, and represents an improvement due to primary and secondary prevention (Nicholls et al., 1986).

Risk factors for the development of CHD have been extensively researched and are well known. They include: genetic predisposition, smoking, high cholesterol diet, sedentary life style, high blood pressure, diabetes, Type A behavior (TABP), and stress (Kornitzer, 1984). Except for genetic predisposition and diabetes, all risk factors are modifiable. Unfortunately, not all risk factors are addressed with equal emphasis, even though study after study suggests the importance of each factor in development of IHD.

The Type A behavior pattern (TABP) refers to an action-emotion complex elicited in vulnerable individuals in response to a stressful environmental situation (Rosenman & Friedman 1959). The Western Collaborative Group Study conducted by Friedman and Rosenman indicated that TABP males experienced about twice the incidence of acute clinical events over a eight and a half year follow-up period compared to Type B males (Friedman & Rosenman, 1974). Type B individuals are those which possess a relative absence of Type A traits.

This difference persisted even when other risk factors such as total serum cholesterol, blood pressure and cigarette smoking were controlled (Wright, Contrada, & Glass, 1985). Results from the Framingham study also demonstrated that TABP was independently associated with CHD (Haynes, Feinleib, Levine, Scotch, & Kannel, 1978).

Despite this overwhelming evidence, stress and TABP are the risk factors most often ignored (Marmot, 1981). For example, the cardiac rehabilitation program in Winnipeg does not include TABP behavioral modification or stress management in their cardiac rehabilitation program. Recent research indicates that rehabilitating cardiac patients do benefit from such a program (Frasure-Smith & Prince, 1985; Friedman, Thoresen, et al, 1984; Bohachick, 1984; Davidson et al., 1979).

Behavioral modification and stress management are core elements of any program. TABP is the outcome of a person situation reaction (Wright, Contrada, & Glass, 1985). The behavior is a maladaptive way of coping with environmental stressors. We are not likely to change the cultural environment of Canadians, but there is a chance we can change individual reactions to these stressors. It can be argued that TABP leads to increased levels of perceived stress, which in turn leads to all other modifiable risk factors. The stressed individual adopts many maladaptive coping responses in order to alleviate the perceived stress. Therefore, such a person may very well smoke too much, exercise too little, and consume large amounts of high cholesterol foods in order to cope (Friedman & Booth-Kewley, 1987).

The need clearly exists for incorporation of both behavior modification and stress management into cardiac rehabilitation. The purpose of this research is to investigate the effectiveness of behavior modification and relaxation therapy as a core component of cardiac rehabilitation.

1.1

CONCEPTUAL FRAMEWORK

The concept used as an organizing framework for this research was that of Strelau (1987). He suggested an individual differences approach to the concept of stress. Strelau defined stress as the outcome of an interaction between the stress inducing environment and the individual. There are inter- as well as intra- individual differences in this approach. What one person subjectively interprets as stressful, another person may not. A stimulus may be perceived as a threat at one moment in time, but not at another.

These inter- and intra- individual differences in the perception of stress result from: 1) the individual's life history, 2) the developmental and individual specific cognitive map, 3) experience with stress-inducing situations, 4) system of motivation and the accepted system of values, 5) the structure and sensitivity of the receptor, and 6) the actual physical and psychic state of the individual.

According to this framework, there are also inter- and intra- individual differences in reaction to stress: 1) preference for the level of activity regarded as an appropriate response to the stressor, 2) individual differences in behavior, 3) individual differences in psychic states, and 4) individual differences in physiological reaction.

Strelau contended that inadequate coping behavior is the main condition for the occurrence of stress. The state of stress is caused by an individual's capacity to respond to stimuli of different intensities and the stimulative value of the situation.

Situations or stimuli above or below the individual's need for stimulation evoke a state of discomfort (Strelau, 1987). An event is perceived and processed according to the individual's specific stimulation processing, and a response is generated. In this model, the individual's tolerability, or conversely, vulnerability to stress is dependent on the individual's temperamental dimension - level of reactivity.

Reactivity is defined as an individual's stable and typical intensity of response to stimuli. If an individual is a low reactor, he/she will seek out highly stimulative situations in order to achieve a comfortable level of arousal. If an individual is a high reactor, he/she will be more comfortable in a situation of low stimulation.

Research has suggested that Type A behavior pattern individuals may be high reactors. Therefore, when they are in situations of high stimulative value, they experience discomfort or stress. The cost of TABP as a response may be termed psycho-physiological debt. Ischemic heart disease is the physiological debt to be paid for an ineffective response to a perceived stressor.

Strelau also considered the style of action in response to a given stimulus. He divided actions into basic actions and auxiliary actions. Basic actions are those which lead directly to attainment of a goal. Auxiliary actions are those actions which lower the risk of failure. Such actions may be defences that the individual considers necessary in order to cope. Strelau's research has shown that high reactors typically exhibit more auxiliary actions than basic actions, whereas in low

reactors, the reverse is true. Hence a TABP person may procrastinate, or become angry in order to make the task at hand more bearable.

This framework clearly suggests a method for altering TABP and the perception of stress. There are several areas in this model where a change can be effected. The following is a schematic representation of Strelau's model as it relates to TABP and Coronary Heart Disease.

*** EVENT

PERCEPTION

- 1) LIFE HISTORY
- 2) DEVELOPMENTAL INDIVIDUAL SPECIFIC COGNITIVE MAP
- 3) EXPERIENCE WITH STRESS INDUCING SITUATIONS
- 4) SYSTEM OF MOTIVATION AND ACCEPTED VALUE SYSTEM
- 5) STRUCTURE AND SENSITIVITY OF CARDIOVASCULAR
SYSTEM
- 6) PHYSICAL AND PSYCHIC STATE

INDIVIDUAL

- 1) PREFERENCE FOR ACTIVITY
- 2) DIFFERENCE IN BEHAVIOR
- 3) PSYCHIC STATE
- 4) DIFFERENCE IN PHYSIOLOGY

TABP

INEFFECTIVE COPING (AUXILLIARY ACTIONS IE. ANGER)

STRESS

Areas where change was possible included the following: 1) experience with stress inducing situations (for example relaxation training), 2) system of motivation and accepted value system (for example to have the individual value something other than achievement) 3) physical and psychic state (provide the individual with a sense of control over stressful stimulation), 4) preference for activity (provide a choice of effective activities), 5) behavior (change ineffective coping responses, or auxiliary actions to effective coping responses, or direct actions).

It was reasonable to assume that behavior modification and relaxation training could change or at the very least modify damaging behavioral patterns. Interruption of the cycle which leads to the development and progression of IHD would have implications for primary, secondary, and tertiary prevention.

The next chapter will review the literature related to Type A behavior pattern, physiological reactivity to stress, and behavior counselling with relaxation training. Particular emphasis was placed on the TABP and its underlying psychological dimensions.

Chapter II

REVIEW OF THE LITERATURE

2.1

TYPE A BEHAVIOR PATTERN

Sir William Osler (1892, cited in Rosenman & Friedman, 1974) was the first to describe a coronary prone personality. This concept was ignored until 1943, when investigators began to study the mechanisms of coronary artery occlusion (Dunbar, 1954; Arlow, 1945; Miles, Waldfogel, Barrabel, and Cable, 1954). The hypothesis that definite patterns of personality dysfunction were associated with psychosomatic disorders had been entertained over the previous decade, and in respect to CHD, it was felt that a patient's life expectancy might depend on his capacity to deal with life stress.

Original work by Friedman and Rosenman in 1959 generated a renewed interest in this area.

They described their Type A Behavior Pattern as characterized by

1) an intense, sustained drive to achieve self selected but usually poorly defined goals, 2) a profound inclination and eagerness to compete, 3) persistent desire for recognition and advancement, 4) continuous involvement in multiple diverse functions constantly subject to time restrictions, 5) habitual propensity to accelerate the rate of execution of many physical and mental functions, and 6) extraordinary mental and physical alertness (Friedman and Rosenman, 1959, 1286).

Later work by Rosenman and Friedman (1974) described TABP as an action-emotion complex exhibited by an individual who is engaged in a chronic

struggle with the environment. Their work also described the converse of TABP, which is Type B behavior. Type B individuals exhibit a relative absence of Type A behaviors, and are more placid and less hurried.

Rosenman and Friedman (1974) believed that our contemporary environment has encouraged TABP. It offers special rewards to those who perform rapidly and aggressively. TABP does not arise solely from the individual's personality, but is elicited in response to our culture. Indeed, Marmot and Syme (1976) found a gradient between the occurrence of heart disease among Japanese individuals. It is lowest in Japan, intermediate in Hawaii, and highest in California. This was true even when other risk factors were controlled. They suggested that American emphasis on social and geographic mobility, and on individualized striving ambition may be the cause. This phenomenon is in marked contrast to Japanese culture, where emphasis is placed on group cohesion, group achievement, and social stability (Marmot & Syme, 1976).

2.1.1

Research Relating TABP to CHD

TABP is considered a risk factor in the development of coronary artery disease. Several longitudinal studies support this contention, but a few find no relationship between the two (Manuck, Kaplan, & Matthews, 1986). Support can be found for either end of the spectrum of beliefs on the topic.

The Western Collaborative Group Study was the first prospective investigation of coronary risk and TABP. Thirty-two hundred employed men, free of heart disease at the beginning, were followed for eight and

a half years. TABP was assessed with the Structured Interview (SI), and the Jenkins Activity Survey (JAS). The results demonstrated that SI classified TABP individuals had twice the incidence of myocardial infarction, angina, and sudden death. Statistical adjustment for 12 other factors, including hypertension, serum cholesterol, smoking, and age, failed to change the associated risk (Rosenman, Friedman, & Straus et al., 1970).

The Framingham Heart Study followed 1674 coronary free men and women for eight years. TABP was assessed using the Framingham Type A Scale. Women who developed coronary heart disease (CHD) scored significantly higher on TABP, suppressed hostility, and tension and anxiety symptom scales. Type A women developed CHD twice as often, and angina three times more frequently. When standard risk factors were controlled, TABP and not discussing anger were independent predictors of CHD. In Framingham males, TABP, work overload, frequent job promotions, and suppressing anger were related to increased risk of CHD. Among men 45-64 years, TABP was associated with a twofold risk of angina, myocardial infarction, and CHD. This association was found only among white collar workers. Results of this study suggested that TABP and suppressed hostility were related to pathogenesis of CHD in both men and women (Haynes, Feinleib, & Kannel, 1980; Haynes, Levine, Scotch, Feinleib, & Kannel, 1978).

The French-Belgium Co-operative Study classified initially healthy men using the Bortner Scale and followed them for 5 years. As with the previous two studies, TABP was found to predict CHD (The French-Belgium Collaborative Group, 1982). The Multiple Risk Factor Intervention Trial

(MRFIT) followed two separate large groups of healthy males for a period of 7.1 years. The first cohort consisting of 3,110 subjects was classified using the SI, and results suggested that TABP was not associated with risk of the first major coronary event. Likewise, JAS scores obtained for the second cohort of 12,772 subjects were not correlated with risk of CHD. (Shekelle et al., 1985).

Results from MRFIT raised questions regarding the robustness of the TABP hypothesis. Matthews (1982) suggested that the psychological dimensions underlying TABP have not been elucidated, though several possibilities do hold promise. Throughout this process, it was imperative to remember that TABP and coronary prone behavior were not the same. Booth-Kewley and Friedman (1987) recommended exploration of the various underlying dimensions of the coronary prone behavior.

2.1.2

Measurement of Type A

Measurement tools for assessment of TABP are the Structured Interview (SI), the Framingham Type A Scale, and the Jenkins Activity Survey (JAS). These 3 scales have been related prospectively to CHD (Matthews, 1982).

The SI is an interview performed by a skilled, specially trained examiner. There are 25 questions which should elicit impatience, hostility, and competitiveness from TABP individuals. Some of the questions are deliberately asked in such a way as to elicit a style of speech characteristic of TABP. A TABP person typically interrupts and answers prior to the end of the question. The classification of behavior

pattern is achieved through self reports of Type A behaviors and speech stylistics. Individuals are classified into: 1) A1, or fully developed Type A; 2) A2, or incompletely developed Type A; 3) X, or an equal mix of Type A, and Type B; 4) Type B, or the absence of all Type A characteristics. Factor analysis of the scores have revealed four independent factors: clinical ratings of speech behavior, self-reports of pressured drive, anger, and competitiveness (Matthews, 1982). The SI is the best method of classification that presently exists, but it requires specialized training by professionals, and repeated practice.

The JAS is a paper-and-pencil test which can easily be computer scored. Scoring is based on optimal weights which predicted the SI classification in the Western Collaborative Group Study. Scores range from approximately 100 to 300. The median score is designated as the division between Type A and Type B. Only 21 of the 52 items are weighted substantially in scoring: 1 item on hostility when younger; 5 items on hard driving competitiveness; 8 items on immediate, quick action; and 7 items on pressured style of working (Matthews, 1982). The JAS is convenient to use because it is economical and easy to score.

The Framingham Type A Scale is a self report scale containing 10 items. These assess the individual's competitive drive, sense of time urgency, and perception of job pressures. Items were selected by a panel of experts from a 300 item inventory originally developed to assess psychosocial attributes of subjects in the Framingham Heart Study. Scores above the sample median indicate TABP, and those below indicate Type B (Haynes, Levine et al., 1978).

All three measures appear to be reliable, but correspondence among them is not strong. The JAS and the Framingham Type A scale agree with the SI classification in 60-70% of middle aged, white collar and undergraduate men. The three Type A measures, which purport to measure the same construct, have only the slightest margin of overlap (Matthews, 1982). Matthews's (1982) review of the literature strongly suggested that current instruments seem to measure different behaviors within the same construct.

2.1.3

Anger and Hostility

A meta-analytic review of 101 studies linking personality to illness suggested that six personality variables have positive and reliable associations with coronary heart disease. These were anxiety, depression, anger, hostility, aggression, and extroversion. The combined effect sizes for anxiety, anger/hostility; anger/hostility/aggression; and depression were found to be of similar magnitude to that observed between TABP and CHD (Booth-Kewley & Friedman, 1987). Friedman and Booth-Kewley (1987) suggested that certain components of TABP relate more reliably to CHD than the entire set of behaviors. Expression of anger and hostility are currently thought to be the toxic elements of the behavior pattern (Friedman & Booth-Kewley, 1987). This review concluded that more research should be directed toward these variables.

Dembroski and Costa (1987) described 'Potential for Hostility' as the principal contender for the toxic facet of TABP. Their conceptual definition of 'Potential for Hostility' was

the relatively stable tendency a) to experience varying degrees and combinations of anger, irritability, resentment, and related negative affects in response to common everyday events that are likely to arouse them in individuals who are prone to react in such ways, and/or b) to react with expression of antagonism, disagreeableness, rudeness, surliness, criticalness, and unco-operativeness (Dembroski, 1987, 224).

Diamond (1982) discussed and concurred with a definition of hostility put forth by Saul in 1976. This was

a motivating force - a conscious or unconscious impulse, tendency, intent or reaction aimed at injuring or destroying some object - hostility is usually accompanied by the feeling or emotion of anger (Diamond, 1982, 412).

Carver and Glass (1978) concluded that aggression was provoked in TABP subjects when their sense of competence and mastery was threatened by environmental circumstances. TABP subjects administered more shocks to a confederate in a bogus learning experiment after a confederate derogated the subject before hand. A second experiment investigated aggression in two parts. In the first part TABP subjects were more hostile to a confederate in a bogus learning experiment only when the subjects were frustrated before the start of the experiment by an impossible task. The aggression by Type As emerged only when the aggressive act could not affect the confederates' learning. The authors called this hostile aggression as opposed to instrumental aggression (Strube, Turner, Cerro, Stevens, & Hinchley, 1984). The second part of this paper reported that Type A women were found to be overrepresented amongst a group of perpetrators of child abuse (Strube, Turner et al., 1984). Unlike the other two experiments, Holmes and Will (1985) found that Type A males only gave higher levels of punishment to a confederate when they were not previously angered. Matthews (1982) claimed that

Type As engage in more aggressive behaviors, especially with other Type As. This trait may in turn serve to increase their own aggression and increase their social isolation.

Recent research has explored hostility related to coronary atherosclerosis through angiography. Williams et al. (1980) used the Ho scale to assess hostility. Ho is a subcomponent of the Minnesota Multiphasic Personality Inventory. They found that high Ho scores were related to increased coronary occlusion as demonstrated by angiography. This relationship held true for both males and females in a sample size of 424 (Williams et al., 1980). A second investigation using vessel occlusion as the disease end point found that hostility was related, but only in anger-in subjects. Anger-in was defined as the tendency to hold anger in without expressing it. Hostility scores were assessed using the SI, and Anger-in scores were measured with the Framingham Anger In/Out Scale. This same investigation found no relationship between coronary occlusion and Buss Durkee Hostility scores (Dembroski, MacDougall, Williams, Haney & Blumenthal, 1985). Siegman, Dembroski and Ringel (1987) found that coronary occlusion was only positively associated with non-neurotic hostility. They used severity and location of vessel occlusion as the disease end point. The measure of hostility was factor II of the Buss Durkee Hostility Scale. Total Buss Durkee scores did not relate to vessel disease.

Barefoot, Dahlstrom, and Williams (1983) found that high Ho scores were related to evidence of clinical coronary disease. In fact, this study found high Ho scores to be related to mortality from all causes. Shekelle, Gale, Ostfeld, and Paul (1983) also found high Ho scores to be

positively associated with crude 20 year mortality from all causes in a follow up of the Western Electric Study. A third follow up study found no relationship between high Ho scores and risk of CHD (McCranie, Watkins, Brandsma, & Sisson, 1986).

Cardiovascular reactivity has been measured as the physiological end point of hostility in some research. One study found Type As more reactive during harassment from a confederate. Measures of reactivity were epinephrine, norepinephrine, blood pressure, and heart rate (Glass et al., 1980). A second experiment concluded that Type As were more reactive to harassment only when the subject scored high on a hostility scale and high Anger-Out. Hostility was measured with the Buss Durkee Hostility Inventory and Anger-Out with the Framingham Anger-In/Out Scale.

Janisse, Edguer, and Dyck (1986) found higher heart rates during anger imagery in Type A males who scored high on an anger expression scale. Anger expression was measured with the Anger Expression Inventory, and TABP was assessed with JAS. Their research results suggested that physiological reactivity was mediated by a threat to loss of control.

In one study of 50 cardiac patients, anginal pain was significantly correlated with trait anger measured by the State Trait Personality Inventory (Smith, Follick, & Korrs, 1984). Similarly, a Finnish study found an association between hostility and coronary attack, but only in hypertensive males. Hostility was assessed with a Likert type scale of 3 hostility items (Koskenvuo et al., 1988).

Goldstein et al. (1988) concluded that coping with anger by conscious inhibition of its expression is associated with increases in systolic and diastolic blood pressure. Anger was measured in this study with the Survey of Affective Stress (Goldstein, Edelberg, Meier, & Davis, 1988). Finally, Hooker, Blumenthal, and Siegler (1987) investigated hostility in Type A and Type B men. They found that Type A males with an increased need for power had higher scores on a hostility measure. Hostility was assessed with the Jackson Personality Inventory Form using subscales relating to Aggression and Defence.

It seems that research in this area is rather inconclusive. In fact, Dembroski and Costa (1987) pointed out that while the potential for hostility is a profitable research strategy, hostility like TABP is a multidimensional construct. The literature provided no clear indication for an adequate measure of the construct. At this stage of research, perhaps it is best to explore all available options.

2.1.4

Characteristics of Global TABP

Much research has explored Global TABP related to physiological reactivity as a possible intervening variable in the development of heart disease. It is generally accepted that TABP demonstrates increased sympathetic reactivity when confronted with a threat to loss of control (Matthews, 1982; Matthews, Glass, Rosenman, & Bortner, 1977; Corse, Manuck, Cantwell, Giordani, & Matthews, 1982; Wright, Contrada, & Glass, 1985; Francis, 1981). Exaggerated physiological reactivity was found to be stable over time in TABP males, and elicited by a variety of

tasks (Seraganian et al., 1985). Hart & Jamieson (1983) discovered evidence that Type As also demonstrate prolonged cardiovascular arousal following removal of a psychosocial stressor. Matthews (1982) suggested that when Type As are faced with a stressful event they struggle to control that event. TABP is thought to be a specific way of coping with a stressful environment. Active coping in turn results in massive discharge of the sympathetic nervous system hormones, which elevate blood pressure and pulse rate, and cause damage to the myocardial tissue. Research on cynomolgus monkeys under stress, found that high heart rate reactors of both sexes manifested coronary artery atherosclerosis, nearly twice as extensive as their low heart rate reactor counterparts (Manuck, Kaplan, Adams, & Clarkson, 1988).

TABP and increased reactivity seems to be identifiable in preschoolers. Brown and Tanner (1988) investigated Type A in four year olds in response to challenge. Extreme cardiovascular responses were present even at this age.

Pittner and Houston (1980) found that TABP individuals suppress subjective feelings and use denial in their quest for control. This conclusion was also reached by Malcolm, Janisse, and Dyck (1986) who found that Type As responded more intensely to ego threat and denied subjective feelings. A threat to control in Type A subjects caused more intense distress than that experienced by Type B subjects in a similar situation (Suls, Gastorf, & Witenberg, 1979).

Feather and Volkmer (1988) suggested that Type As sought out and preferred tasks which required increased effort as long as the task was

accompanied by feedback. Type As generally outperformed Type Bs in difficult situations which called for persistence or endurance (Matthews, 1982).

In conclusion, TABP may well be related to CHD by abnormal physiological reactivity. It is possible that Type As exacerbate this process by seeking out and preferring stressful situations, and exhibiting prolonged reactivity. Denial of subjective feelings may seriously limit their awareness of potential physical dangers.

2.2

PHYSIOLOGICAL RESPONSE TO STRESS

When an organism perceives a stressor, two pathways of physiologic response are activated: the pituitary adrenal cortical activation, and the sympathetic-adrenal medullary activation. Selye (1975) described the body's response to stress as the General Adaptation Syndrome, consisting of the three phases: alarm, resistance, and adaptation. The human organism perceives both physical demands and emotionally painful stress (EPS) in much the same way. Both stressors result in radical changes in body chemistry and physical parameters. A physical demand is usually self-limiting, and chemical equilibrium is rapidly restored. However, with EPS, chemistry can remain unbalanced for a prolonged time, because there is no physical exertion to utilize the biochemicals.

Pituitary-adrenal cortical activation results in excessive production of glucocorticoids. These hormones have numerous actions. Those important in cardiac pathology are: conversion of protein into carbohydrates and fat resulting in hyperlipidemia and

hypercholesterolemia; increasing platelet mass; sensitizing arterioles to the pressor effects of catecholamines; and increasing sodium retention through mineralocorticoid activity. Glucocorticoids also increase the number of dead or injured cells in the arterial endothelium (Elliot & Buell, 1985).

Physiologic effects of sympathetic adrenal medullary activity are primarily caused by the catecholamines. 'Catecholamine' refers to any compound composed of a catechol nucleus (a benzene ring with two adjacent hydroxyl groups) and an amine containing side chain (Manger and Gifford, 1977). The catecholamines known to occur in humans are dopamine (D), norepinephrine (NE), and epinephrine (E) (Manger and Gifford, 1977). Cannon (1914) originally described epinephrine as a stress hormone. His research resulted from experiments on cats exposed to barking dogs. Physiological response to stress produces a marked rise in E and NE (Mills, 1985).

A chronically stressed individual maintains a higher than normal baseline level of catecholamines due to chronic stimulation of the adrenal medulla. Several studies have found that plasma catecholamines accurately reflect emotionally painful stimuli and SNS arousal (Dimsdale & Moss, 1980; Matthew et al., 1980; Theorell, Lind, Froberg, Karlsson, Levi, 1972; Kohn, Sleet, Carson, & Gray, 1983). Experiments with rats have demonstrated that adaptation to chronic stress results in an improved capacity of the adrenal medulla to produce catecholamines (Rose, 1980). This is in marked contrast to cortisol secretion, which is rapidly extinguished after removal of a psychosocial stressor. That catecholamines remain in the blood for a prolonged time is supported by

Lawler, Barker, Hubbard, & Schaub (1981). They demonstrated elevated blood pressure in rats 10 weeks after the removal of a simulated psychosocial conflict.

2.2.1

Response of the Myocardium to Catecholamines

The myocardium is innervated by both SNS and Parasympathetic (PSNS) fibres (Katz, 1980). The SNS fibres are distributed to all regions of the heart, and the nerves terminate in depressions of the cell sarcolemma. There are both beta 1 and beta 2 receptors within the heart. The SNS secretes both E and NE as its neurotransmitters. For example, stimulation of beta 1 receptors by catecholamines results in cardioacceleration, increased myocardial strength, and increased cardiac output (Katz, 1980). Catecholamine stimulation of the arterioles increases peripheral resistance, and increases blood pressure.

2.2.1.1

Cellular Damage

Under the action of severe emotionally painful stress, the high concentration of blood catecholamines leads to lipid peroxidation of the myocardial membrane. This lipid peroxidation alters the selectively permeable nature of the membrane and results in calcium overload of the myocardial cell. Calcium overload damages the contractile mechanism and ultimately leads to necrobiosis and contractile damage (Meerson, 1980; Malyshev & Ekimov, 1985; Saulya, Golubeva, & Meerson, 1985; Meerson, 1988; Singal, Beamish & Dhalla, 1983; Dhalla, Pierce, Panagia, Singal, & Beamish, 1982). In addition, the membranous structure of the

mitochondria and the lysosomes are altered, which leads to impaired energy production, and the liberation of destructive phospholipases and proteases. This altered myocardial structure has a decreased resistance to hypoxia, and impaired electrical stability (Meerson, 1980, 1988).

Altered electrical stability of the myocardium has been implicated in the precipitation of severe ventricular arrhythmias, ST segment depression, and sudden cardiac death (Verrier & Lown, 1984; Jennings & Follansbee, 1985; Deanfield et al., 1984; Singal, Kapur, Beamish, & Dhalla, 1984; Matta, Lawler, & Lown, 1976; Natelson & Cagin, 1979; Corbalan, Verrier, & Lown, 1974).

Beta adrenergic drive is also implicated in the pathophysiology of atherosclerosis. Enhanced cardiac output is thought to damage the intima of the arterial walls. During the repair process, endothelial cells proliferate and fibroblasts migrate to the site of the injury. The catecholamines are known to shrink endothelial cell size, which leaves large gaps at the repair site. Low and very low density lipoproteins become trapped in the spaces and attract foam cells, which ingest the fat. This massive conglomeration at the repair site forms the basis for an intimal lesion (Cinciripini, 1986).

Several authors have found that catecholamines increase platelet adhesion (Haft & Arkel, 1976), and increase blood viscosity (Malyshev, Petrova, & Manukhin, 1985). This entire process functions to occlude the myocardial blood supply causing necrosis of tissue, or a myocardial infarction.

2.2.2

Protective Influences of Adaptation

Meerson (1980) suggested that EPS is regularly followed by activation of the inhibitory Gamma Amino Butyric Acid (GABA) system in animal brains. This system restricts the intensity and time of the stress syndrome.

In the brain, the systems of inhibitory neurons effectuate the synthesis and discharge of the inhibitory mediators: GABA, glycine, dopamine, serotonin, and possibly enkepholins (Meerson, 1980, 480).

Meerson's research focussed on the tricarboxylic acid (TCA) cycle intermediates. He noted a marked reduction of TCA intermediates, alpha-ketoglutarate, and succinate during EPS in rats (Appendix 1). This is because alphaketoglutarate and succinate are preferentially used to form GOBA. GOBA limits the damaging effects of the catecholamines on the cardiovascular system. Several studies suggested that complete protection of the cardiovascular system may be afforded by repeated short term exposure to the stressor followed by periods of relaxation (Meerson, Zayats & Bozhko, 1985; Manukhina, Katkova & Meerson, 1985; Meerson & Katkova, 1985; Meerson, Katkova, Kozlov, & Morozova, 1985). Cinciripini (1986) in fact suggested that opiodergic inhibition of the SNS response to a behavioral challenge may be deficient in persons at risk for hypertension and cardiovascular hyperreactivity.

This discussion leads to the question: Can the stress response of TABP individuals be attenuated in order to reduce cardiovascular morbidity and mortality? Several studies have explored this possibility with promising results.

2.3

INTERVENTION

Relaxation has been used as the sole intervention by numerous researchers. Davidson et al. (1979) analyzed individual responses and group means of blood pressure, ventricular dimensions, myocardial contractility, and plasma epinephrine in 6 cardiac subjects after teaching them relaxation. Their results were favourable and suggested that physiological changes during relaxation are mediated through the SNS (Davidson, Winchester, Taylor, Alderman, & Ingels, 1979). Bohachick (1984) found that 3 weeks of relaxation training in rehabilitating cardiac patients reduced their mean state anxiety as measured by the State-Trait Personality Inventory. A study by Matthew et al. (1980) decreased E, NE, and Catechol- O -Methyl transferase activity in red blood cells in 15 healthy patients (Matthew et al, 1980). One study did not produce significant reductions in premature ventricular contractions through relaxation training in 6 myocardial infarct patients (Weiss, Cheatle, Rubin, Reichek, & Brady, 1985).

Relaxation training is a simple, non-invasive, and cost effective method for primary, secondary, and tertiary prevention. It is well within the realm of possible nursing interventions. Several excellent reviews of the topic have been written (Tarler-Benlolo, 1978; Kutz, Borysenko, & Benson, 1985; Titlebaum, 1988; Kolkmeier, 1982; Snyder, 1984; Herman, 1985).

Benson (1975) described relaxation as a wakeful hypometabolic state. The physiological response of relaxation underlies an altered state of consciousness. Relaxation is thought to counteract overreactivity of the

SNS response. Uniform and significant decreases have been observed in oxygen consumption, carbon dioxide elimination, heart and respiratory rate, and arterial blood lactate. The electroencephalogram shows intensified slow alpha wave activity with occasional theta waves during relaxation. It is a consciously and purposefully evoked state, the absolute requirements of which are a quiet environment, an object to dwell upon, a passive attitude, and a comfortable position (Benson, 1975).

The process requires time and takes commitment on the part of the subject, but physiological responses are virtually the same for any technique used (Kutz, Borysenko, & Benson, 1985). Decreased arousal of the SNS may be due to decreased end organ responsivity to NE. Kutz et al. (1985) suggested this may be due to stimulation of the GABA ergic systems. It is therefore likely to be useful in modifying the Type A stress pattern, but perhaps not enough.

Several researchers have investigated the effects of various forms of behavioral intervention. Friedman et al. (1984) compared the effects of cardiac counselling, group Type A behavior counselling, and no treatment. Group Type A behavior counselling was found to significantly reduce the number of fatal myocardial infarcts in 862 patients over a three year time period (Friedman et al., 1984).

Roskies et al. (1979) compared the effects of behavior therapy and psychotherapy on 3 groups. Their results were promising in that behavior therapy subjects demonstrated a decrease in plasma cholesterol, blood pressure, and heart rate. These physiological changes were accompanied

by an increase in life satisfaction and a decrease in psychological symptoms. One of the experimental groups was comprised of 6 cardiac patients, and the other two were healthy Type As. This work led to a much larger study (Roskies et al., 1979).

The Montreal Type A Intervention Project compared the effectiveness of aerobic exercise, cognitive behavioral stress management, and weight training on 107 healthy Type As. The stress management group was found to demonstrate significantly greater changes in behavioral reactivity compared to the other two groups. This same study showed negligible changes in physiological reactivity as measured by heart rate and blood pressure (Roskies et al., 1986; Seraganian, Roskies, Hanley, Oseasohn, & Collu, 1987).

Bruning and Frew (1987) compared the effects of exercise, relaxation and management skill training on physiological variables. Their results showed that all strategies led to a decrease in heart rate and systolic blood pressure.

Some research has investigated anger control as the sole intervention. Hart (1984) recommended this narrow focus, as he was able to demonstrate marked reductions in Type A scores with only anger control intervention. Deffenbacher et al. (1987) compared social skills and cognitive relaxation intervention, with no treatment for reduction of general anger. General anger was reduced in both the social skills training, and cognitive relaxation intervention (Deffenbacher, Storey, Stark, Hogg, & Brandon, 1987).

Frasure-Smith and Prince (1984) followed 453 male post coronary patients for 3 years. Their intervention consisted of a monthly phone call to patients plus a nurse's home visit when stress levels became too high in these patients. Results showed a significant reduction in cardiac deaths in the experimental group as compared to controls. They described their intervention as a comforting measure. Rahe et al. (1979) offered brief group therapy to rehabilitating cardiac patients in a 3-4 year controlled trial. Subjects demonstrated favourable results, which the authors attributed to the supportive aspects of the group (Rahe, Captain, Ward, Commander, & Hayes, 1979).

Nunes, Frank, and Kornfeld (1987) performed a meta-analysis of 18 studies relating to modification of TABP. Psychologic intervention was found to reduce coronary events by 50% (Nunes, Frank, & Kornfeld, 1987).

2.3.1

Conclusion

In light of the many studies using some form of behavior counselling, it seems prudent to combine relaxation with behavior counselling. Strelau's framework provides a convenient way of viewing the literature on this topic. Type A behavior seems to be exhibited as a coping mechanism in response to uncontrollable situations. That Type As seek out highly stimulating situations when in fact they may be a high reactors, is possible. This may be because Type As are totally out of touch with their internal environment. The net result is excessive SNS drive which exhausts the individual, and ultimately causes physiologic damage to the myocardium. It seems reasonable to expect that TABP and

SNS reactivity can be altered by effective intervention. The purpose of this research then, is to develop and evaluate an intervention for rehabilitating cardiac patients.

METHODOLOGY

ASSESSMENT	TREATMENT	EVALUATION 1	TREATMENT	EVALUATION 2
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35
36	37	38	39	40
41	42	43	44	45
46	47	48	49	50
51	52	53	54	55
56	57	58	59	60
61	62	63	64	65
66	67	68	69	70
71	72	73	74	75
76	77	78	79	80
81	82	83	84	85
86	87	88	89	90
91	92	93	94	95
96	97	98	99	100

TREATMENT 1

-----*

CONTROL

-----*-----*-----*++++++*++++++

3.1

DEFINITION OF TERMS

Physiological Reactivity was defined in terms of SNS activation. Hence, blood pressure, heart rate, serum catecholamines, and electrocardiogram tracings were used as indices of physiological parameters.

Anger/Hostility and Anxiety were measured with the State Trait Personality Inventory, subscales State Anger, Trait Anger, State Anxiety, and Trait Anxiety. Trait anger is defined as the hostility component or the individual's genetic predisposition to hostility. State anger is defined as the individual's current state of anger (See Appendix 2).

Type A Behavior Pattern was measured with the Jenkins Activity Survey (JAS) (See Appendix 2).

3.2

HYPOTHESES

The general hypothesis tested was: Group Type A Behavior Counselling Sessions and Relaxation Training will improve the prognosis of post myocardial infarct patients.

Specific hypotheses:

- I) Group Type A Behavior Counselling and Relaxation Training will decrease reactivity as measured by:
 - i) resting levels of serum catecholamines
 - ii) resting heart rate
 - iii) resting blood pressure
 - iv) electrocardiogram tracings (presence of arrhythmias, ST segment depression, T wave height, and R wave height).

II) Group Type A Behavior Counselling and Relaxation Training:

will decrease auxilliary actions as measured by:

- i) a decrease in state anger
- ii) a decrease in trait anger
- iii a decrease in state anxiety
- iv) a decrease in trait anxiety.

3.3

SETTING

Subjects were recruited through the Kinsman Reh-Fit Centre. This facility offers an excellent program of cardiac rehabilitation called reh-fit, and pre-cardiac conditioning called pre-fit. The centre is staffed by nurses, physicians, laboratory personnel, and a nutritionist. Members are initially interviewed by nurses. Once they decide to join the program, their medical records are obtained, and the Reh-Fit physicians keep the member's own doctor well informed about the patients progress.

Members are examined by a Reh-Fit physician, and sent for testing. Routine tests include: bloodwork for hemoglobin, glucose, cholesterol, high density lipoproteins, triglycerides, spirometry, body composition, and maximum treadmill, or stress testing. After the results are known, an exercise regime is individually designed and prescribed for the member.

Individuals then begin the program with 12 instructional sessions delivered by nursing staff, and the nutritionist. These seminars include: cardiac pathology, risk factors for CHD, goal setting, life

style change, and nutrition. Members spend one-half hour of these first sessions on the exercise track with their nurse. Three exercise periods per week is considered ideal and is strongly encouraged. For the first 3 months, members may exercise only while a physician is at the Reh-Fit. After this time period, repeat testing is performed, and members are free to exercise at any time. The centre is always staffed by 2 nurses and emergency resuscitation equipment is available on site.

The proposal for this study was submitted to the Reh-Fit's ethical review committee, and permission was obtained for admission to the centre. Because certain Reh-Fit members were excluded from this study, the Reh-Fit requested that the program be offered again at the termination of the study for all members. This was done in January, 1989. All assessments, treatments, and evaluations were carried out at the Reh-Fit Centre by the principal investigator.

3.4

SAMPLE

The sample was a convenience sample. Posters were placed at the Reh-Fit during December, 1987, and January, 1988. Interested individuals were asked to fill out a form indicating interest in the program (Appendix 3). The subjects were contacted by telephone and an appointment was set up for early in February. This method was used to obtain individuals who considered themselves to be under chronic stress.

Initially subjects were excluded if they were on Beta blockade, but the majority of interested individuals were on this medication. A

discussion with the cardiac physiologist resulted in expansion of the criteria to include these individuals. Participants included all individuals who had experienced a myocardial infarction or coronary artery bypass surgery sometime within the past 3 years.

Seventy-six individuals indicated an interest in stress reduction. Thirty-one of these were either ineligible, or had lost interest by the time initial contact was made. Forty-five subjects finally entered the program, and were assessed by the researcher. Throughout the course of assessment and early treatment, ten subjects withdrew from involvement. One member was hospitalized due to pheochromocytoma, 2 individuals experienced a serious myocardial infarction, one person experienced severe family difficulties, one was diagnosed as having cancer, and 5 people did not like the content of the program.

The final sample consisted of 35 subjects who met the following criteria:

- 1) had experienced a myocardial infarction or coronary artery bypass surgery (CABG) within the past three years,
- 2) were members of the Reh-Fit centre for at least three months,
- 3) were on a stabilized medication regime,
- 4) were willing to attend 5 one and a half hour sessions at the Reh-Fit during March or May,
- 5) were willing to be assessed by the researcher three times.

Assessment of subjects began in early February, 1988.

3.4.1

Instruments

Electrocardiogram (EKG): The principal investigator was taught how to perform EKG tracings by a qualified EKG technician. Training took place in December, 1987. The training and practice continued until the EKG technician considered the researcher competent in the skill. Initial EKG tracings were reviewed by the Reh-Fit lab personnel and deemed reliable tracings. All tracings were performed on a Marquette model Mac 1 EKG tracing machine, which belonged to the Reh-Fit Centre. Tracings were done while the subject was supine and after he/she had relaxed for 5 minutes. Tracings were done between 1:00 PM. and 4:00 PM. in the afternoon during weekdays, and between 9:00 AM. and 12:00 noon on Saturdays and Sundays. This schedule was adopted to avoid conflict with the Reh-Fit schedule.

Serum Catecholamines: Subjects were asked to follow the instructions listed in Appendix 3 for diet prior to having serum catecholamines drawn. The 48 hour intake was reviewed by the researcher to ensure that catecholamine levels would not be affected by dietary intake or ingestion of nitrates. This is according to information provided by Theorell, Lind Froberg, Karlsson, and Levi (1972) All blood was drawn between 7:00 AM. and 10:00 AM. by either the researcher or the lab technician. Subjects were seated quietly and asked to relax before the blood was drawn. This time was used throughout the research to avoid diurnal variations in the serum catecholamines. Both technicians were skilled at the procedure and care was taken to avoid unnecessary trauma during venipuncture. Blood was taken from the non-dominant arm using a #21 gauge needle and placed in a heparinized vacutainer from Bectin

Dickinson. Blood was stored on ice and transported within 3 hours to the physiology laboratory of Dr. N.S. Dhalla. Here the blood was centrifuged in a Beckman J2-21 Centrifuge for 10 minutes at 4g and 4 degrees Centigrade. The supernatant was pipetted into plastic storage tubes by the researcher, and stored at -70 degrees Centigrade until analysis.

Blood Pressure: Blood pressure was measured by the researcher while the subject was supine, and after he/she had rested for 5 minutes. The subject was asked to relax during this time and take slow deep breaths. This measurement was taken on the dominant arm, using a manual occlusion cuff, and an eye level sphygmomanometer from Trimline by PyMaH. This equipment belonged to the Reh-Fit Centre, and was regularly calibrated. A Littman stethoscope was used to listen to the Korotkoff sounds. Three readings were taken and the average of the three readings recorded. Diastolic blood pressure was recorded at the final audible Korotkoff sound.

State Trait Personality Inventory (STPI): The STPI consists of six subscales: state and trait anger, state and trait anxiety, and state and trait curiosity. Curiosity results were not used in this study. Each subscale consists of 10 items. Subjects respond to the STPI state subscales in terms of how they feel at a particular moment by rating themselves on the following four-point scale: 1) Not at all; 2) Somewhat; 3) Moderately So; and 4) Very Much So. In responding to the STPI trait items, subjects indicate how they generally feel on a four point scale: 1) Almost Never; 2) Sometimes; 3) Often; and 4) Almost Always.

Some of the items (eg. " I feel nervous and restless ") are worded in such a way that a rating of 4 indicates a high level of anxiety. Other items (eg. " I feel calm ") are worded so that a high rating indicates the absence of anxiety. There are no anger-absent items. The range of possible scores for each subscale can vary from a minimum of 10 to a maximum of 40. The STPI has been extensively tested. Reported alpha coefficients for working adults over age 35 are:

Trait anger, females: .90; Males: .88;

State anger, females: .93; Males: .93;

Trait anxiety, females: .92; Males: .88

State anxiety, females: .93; Males: .92

(Spielberger et al., 1979)

Jenkins Activity Survey (JAS): The JAS was developed in an attempt to find a simple paper-and-pencil test that would identify the Type A behavior pattern. With a simple scoring method, it was found to validly identify the behavior pattern in 72% of males. The criterion for this figure was the Structured Interview.

The JAS has been factor analyzed based on responses from four large samples of employed males. This included the 3524 males followed in the Western Collaborative Group Study. The analyses revealed that the test measures at least three major conceptually independent behavioral syndromes: I) Hard driving, II) Job Involvement, and III) Speed and Impatience (Zyzanski & Jenkins, 1970).

3.5

ASSESSMENT

During the initial meeting, which lasted approximately one and a half hours, the researcher explained the purpose of the study and obtained informed consent from each participant. At this time, the subject was interviewed to obtain information about demographic variables, medical condition, medications, personal habits, and family and work life. Height, weight, blood pressure, EKG tracing, and STPI were also obtained. The subject was informed he/she would begin attending the classes in March or in May, and would be contacted by telephone within three weeks. Subjects were asked to record their intake for 48 hours prior, and an appointment was made for drawing blood. (See Appendix 3-Consent, Interview Format)

3.6

TREATMENT

Subjects were randomly divided into treatment group and control group. Randomization was maintained, except in one case, where the subject would be out of town in May, and so was allowed to attend classes in March. A choice of 3 time slots were offered to the participants: Saturday AM., Monday evening, and Wednesday evening. Subjects were allowed to attend different sessions as necessary to accommodate their schedule, although this infrequently occurred. Sessions lasted approximately one and a half hours each and continued for five weeks. Subjects were allowed to miss one session, if they met with the researcher, and obtained the packet and instructions on what was requested of them for that session. This happened in 2 cases during

March, and one case during May. If subjects missed more than one session, they were not allowed to continue. All subjects were permitted to bring their significant other to these meetings if they so desired. This was done so that a maximally supportive environment would prevail. In some cases, subjects felt that their husband or wife was their source of stress, and therefore did not invite them to join. Six participants brought their family member with them. These subjects were scattered throughout various groups.

Sessions were conducted in a large carpeted room. A table with chairs around it served as setting for the first part of each session. For the second half of each session, the room was dimmed, and gymnasium mats were placed on the floor. Subjects were provided with a taped relaxation instruction: Letting Go of Stress by Emmett Miller. This tape recording was introduced at the first first session, and given to each subject for the duration of the experiment.

The content of the sessions was developed largely from five sources: Stress Management for the Healthy Type A, by Ethyl Roskies, 1987; The Relaxation and Stress Reduction Workbook, by Martha Davis, Elizabeth Eshelman, and Matthew McKay, 1982; Stress Management and Coping Workshop by Spielberger, 1982; the Health Resources Centre, 880 Portage Avenue, Winnipeg, Manitoba, and Peoplemaking, 1984 by Virginia Satir.

The following is a discussion of each session. All printed material for each session is contained in Appendix 4.

Session 1

This was an introduction to basic requirements of the program. Meeting times and the need for commitment to change were discussed as advised by Roskies (1987). An 18 minute Walt Disney Film (1968) was shown. Cartoon characters effectively demonstrated the nature of the SNS response to both real and imagined danger.

A stress logo was used to help subjects focus their attention toward their internal milieu. Participants were taught to scan their bodies for tense muscles and physical symptoms of mental stress.

The concept of self-talk was introduced (Ellis, 1961, cited in Davis et al., 1982) This is not advocated by Roskies (1987) because healthy Type As tend to be defensive about this concept. It was felt that cardiac patients are more open to change than healthy Type As, and they would benefit from introduction of a difficult concept early. The concept of self-talk was repeated throughout the program.

Approximately 20 minutes during the first session was spent in group discussion. The last one-half hour was spent introducing the concept of relaxation. Letting Go of Stress includes a logical progression from simple to sophisticated techniques for stress management. The first session was spent learning the most simple exercise, which is progressive muscle relaxation. Subjects were supine during the exercises and were encouraged to use the pillows and blankets provided. There was a 10 minute discussion about the exercise before the end of class. Subjects were encouraged to listen to all the exercises and find the one they liked best for practice at home.

Homework for the next week included keeping a stress diary, observing self-talk, and analyzing the situation. In addition, they were to practice relaxation every day for 20 minutes.

Session 2

The first one-half hour of this session was spent in discussing the homework assignments. By the second session, group members were more open and amenable to sharing their feelings with others. A five minute film clip of humorous, extreme Type A behavior introduced the concept of Type A. Following this, subjects were given time to answer the Jenkins Activity Survey. Twenty minutes were devoted to discussing the items in the survey. The purpose of this was to make subjects aware of Type A behaviors. Subjects were given a copy of "The Perfectionist's Script for Self Defeat" by Burns, 1980. This article was suggested by Roskies (1987). The group closed with a relaxation exercise and assignment of homework as outlined in the appendix.

Session 3

This followed the same format as Session 2. A 30 minute movie entitled "Communicating" (Sterling Productions, 1985) was shown and discussed. The remaining one half hour in the discussion period was used for communication role playing, and the sharing of common difficulties with communicating.

Session 4

This session logically followed from communication, and was devoted to the communication of anger. There was also a discussion of assertion versus aggression.

Session 5

This final session dealt briefly with time management. The majority of the time was spent developing and discussing a wish list as suggested by Roskies (1987). The wish list was to be an extensive list of anything the person really wanted to do. The next step was to decide what was realistic, and to begin to make plans to attain this wish. This technique is an important concept in the management of stress. If the individual has the ability to dispense adequate rewards on one's self, they are less dependent on rewards from others, and consequently less vulnerable to frustration. No relaxation exercise was held, but subjects were asked to give a written evaluation of the program. The first treatment group was asked to practice relaxation and new behaviors for the following 5 weeks and return for a follow-up assessment.

3.7

EVALUATION 1

This was carried out in the same two steps as described in the assessment phase. Repeat measurements were obtained for blood pressure, heart rate, EKG, serum catecholamines, and STPI.

3.8

EVALUATION 2

Only the first treatment group returned for a post 5 week evaluation. Blood pressure and heart rate were recorded at this time and subjects were interviewed briefly about their progress. The second treatment group was evaluated as in Evaluation 1.

3.9

PROTECTION OF THE RIGHTS OF SUBJECTS

This study was approved by the ethical review committee of the School of Nursing, University of Manitoba before data collection began. As previously mentioned, the study also passed the ethical review committee of the Reh-Fit Centre.

Each subject received verbal and written explanation of the study before consent was obtained. The consent form stressed: that subjects were free to withdraw at any time during the study without penalty to their health care. All subjects were assured of confidentiality, and subjects were told they did not have to answer any questions they did not wish to. (Appendix 3)

Subjects were given the choice of having all study results sent to their physician at termination of the study. The subjects requests will be acknowledged when the research is complete. All subjects and interested Reh-Fit staff will receive a summary of the research results.

All data was numerically coded, so that no names could be associated with the raw data. Only the researcher has a copy of the names of subjects. The researcher and her advisors are the only individuals with access to the raw data. All raw data will be destroyed at completion of the study.

3.10

DATA ANALYSISSerum Catecholamines:

Serum catecholamines were analyzed in the physiological laboratory of Dr. N.S. Dhalla. All samples were kept frozen until analysis, and analyzed at the same time. High performance reverse phase liquid chromatography was carried out on a catecholamine special column from Waters; Division of Millipore; Model C-0246. The column beads were Silica based with a coating of C-8. One milliliter (ml) of plasma was mixed with 1 ml of H₂O, 250 microliters of 1 molar Tris buffer (pH 8.6), sodium bisulfide, 100 microliters of ethylenediaminetetraacetic acid (EDTA), and alumina. Catecholamines were extracted from the alumina binding with .1 Normal perchloric acid, which was subsequently centrifuged and the supernatant removed. The supernatant was injected into a 50 microliter fixed loop of Spectra Physics delivery system. Catecholamines were eluted with the buffer which is listed in Table 1. The buffer was properly degasified with Helium and filtration under

TABLE 1

Buffer For Liquid Chromatography

Sodium Acetate	13.68 grams
Citric Acid	8.40 grams
Octane Sulphonate	10.00 ml.
Butyl Amine	.0731 gm.
Ethylenediaminetetraacetic acid (EDTA)	.0744 gm.
Methanol	80.00 ml
H ₂ O	1920.00 ml

vacuum through a .45 micron millipore filtration apparatus.

The Bioanalytical System recovers epinephrine with a 70% efficiency, nor-epinephrine with a 75% efficiency and dopamine with a 75% efficiency. The system was sensitive enough to detect 2 picogram (pg) per milliliter (ml) of catecholamines. Catecholamine detection is usually difficult because of their low serum concentration and their susceptibility to oxidation (Causon & Carruthers, 1982).

A known standard each of epinephrine, nor-epinephrine, and dopamine were run through the column, and used as standards for calculation. Results were obtained in units, and a calculation was done to change the results into pg/ml of serum. Examples of the calculation is contained in Appendix 5.

EKG

EKG interpretation was performed by the researcher and by an expert cardiologist. EKGs were analyzed according to the following: heart rate, PR interval, QRS interval, QT interval, Axis, evidence and location of myocardial infarction, presence of bundle branch block or hemiblock, presence of arrhythmia, presence of atrial or ventricular hypertrophy, and millimeters (mm) of ST segment depression or elevation. A movement of the ST segment toward baseline, an increase in height of the T wave or R wave, and a decrease in number of arrhythmias were considered evidence of improvement in the tracing.

The expert cardiologist rated the overall EKG tracing as: no change, improved, or worse.

JAS

This was computer scored and JAS scores greater than 234 were considered Type A, and scores less than 234, Type B.

STPI

This test was computer scored according to the instructions provided by Spielberger (1979). Internal validity consistency was tested using a Cronbach's alpha calculation.

Analysis of Pre and Post Scores

Pre and post variables were compared for each subject using paired t-tests. Significance level was set at .05. Demographic, medication, and medical history variables were compared between the three groups by one way analysis of variance and chi-square. JAS scores and anger scores were correlated with measures of reactivity. The effect of medications on physiological variables were calculated using one way analysis of variance. The next chapter presents the results of the study.

Chapter IV

RESULTS

The results of the study are described in this chapter. First, the sample is described, and compared to the target population. This is followed by the results of internal consistency reliability alpha scores for the STPI. Next, data comparing pre and post scores of all variables is presented. Finally, a summary of subject evaluation is provided.

4.1

SAMPLE

The sample for this study was comprised of 28 males and 7 females. The first treatment group was made up of 21 subjects. Eight members of the control group became the Treatment 2 group. Nineteen individuals were classified as Type A, and 16 were classified as Type B.

Characteristics of the group are summarized in Table 2, 3, and 4.

Fifteen subjects were retired from active employment. Four subjects had taken early retirement due to their cardiac condition. Two subjects were black, and the rest were caucasian. Twenty-six had a history of heart disease in their family of origin and twenty of these felt their behavior was similar to the family member who had developed heart disease. Analysis of age, height, weight, months since surgery, months since MI, baseline catecholamines, blood pressure and heart

TABLE 2
SUMMARY OF DEMOGRAPHIC VARIABLES

	TREATMENT 1 Range: 39-75 53.59 SD 9.21	CONTROL Range:49-74 60.33 SD 8.62	TREATMENT 2 Range:52-72 58.00 SD 6.19
AGE			
GENDER			
Male	19	4	5
Female	2	2	3
MARITAL STATUS			
Married	18	3	6
Divorced	3	3	3
OCCUPATION			
Retired	7	3	5
Sales	0	1	0
Manager	8	0	3
Self-emp	4	2	0
Labour	2	0	0
HEIGHT	168.62 SD 24.07	166.58 SD 14.75	170.80 SD 9.51
WEIGHT	82.82 SD 12.46	96.23 SD 42.99	79.01 SD 10.18

rate was performed by one way analysis of variance. Marital status, occupation, location of MI, associated medical condition and medications were analyzed by chi square. Neither of these revealed a significant difference between groups.

Subjects had a maximum of 3 associated medical conditions, and were medicated with a maximum of 6 medications. Eight were on 1 medication, 12 on 2, 7 on 3, and 4 on 6 medications. The influence of medications on the dependent variables was analyzed by one way analysis of variance. Beta blockade (N=9) was found to significantly influence heart rate ($p=.02$). This was to be expected as this is one of the actions of the drug. None of the other physiological variables were significantly influenced by any of the medications.

TABLE 3
SUMMARY OF CARDIAC DISEASE

	TREATMENT 1	TREATMENT 2	TREATMENT 3
CABG	10	1	2
MO. SINCE SURG.	5 SD 7.40	2.83 SD 6.14	6.12 SD 11.49
LOCATION INFARCT *			
Post	5	0	0
Ant	7	2	2
Lat	1	0	1
Septal	7	2	2
Inf	10	5	2
None Vis	3	2	3
MONTHS SINCE MI	16.52 SD 11.8	15.83 SD 7.9	19.88 SD 7.95

* Subjects exhibited more than one area of infarct.

Personal habits of subjects are summarized in table 5.

In comparing this sample to the target population of CHD patients, it is important to note the differences. Female subjects represented only 20% of the sample size, whereas in the general population, females represent 37% of all CHD cases. Half of all heart disease commonly strikes between the ages of 35 and 64, and the other half after age 65. In this respect the sample is representative of the population of CHD patients. Fifty percent of heart disease patients are retired, and in this sample, only 43% were retired (Nicholls et al., 1986). Medications and associated medical conditions compare favourably with the target population.

TABLE 4
SUMMARY OF MEDICAL CONDITION AND MEDICATIONS

	TREATMENT 1	TREATMENT 2	TREATMENT 3
MEDICAL CONDITION			
Hypertens	7	2	3
High Chol	1	0	1
Diabetes	0	1	2
None	6	1	
MEDICATION			
Ca Block	7	2	2
Beta Block	5	1	3
Platelet Inhibitor	14	4	5
Vasodilato	8	1	5

TABLE 5
NICOTINE, CAFFEINE, AND ALCOHOL CONSUMPTION

	TREATMENT 1	CONTROL	TREATMENT 2
BEFORE MI			
SMOKE			
Cig per day	13.86 SD 18.47	19.50 SD 22.30	14.00 SD 15.47
CAFFEINE			
Cups per day	6.48 SD 5.17	5.50 SD 2.66	6.63 SD 3.33
ALCOHOL			
Oz. per week	9.71 SD 12.14	14.67 SD 19.10	4.40 SD 5.45
AFTER MI			
SMOKE			
Cig per day	0.23 SD .89	4.17 SD 10.21	3.12 SD 8.84
CAFFEINE			
Cups per day	3.71 SD 3.08	1.50 SD 1.97	2.13 SD 3.56
ALCOHOL			
Oz. per week	2.90 SD 3.66	1.66 SD .75	3.00 SD 4.81

This group may be unusual in that they have made major strides towards changing their lifestyle. This is indicated by the dramatic decrease in nicotine, caffeine, and alcohol consumption. As well, all members exercised at least three times a week, and had modified their diets to a low cholesterol intake. Though a myocardial infarct or coronary artery bypass surgery are powerful stimuli for change, it is thought that this group is somewhat more motivated than the general population of CHD patients.

4.1.1

STPI

STPI: State anxiety, trait anxiety, state anger, and trait anger were tested for internal consistency reliability using Cronbach's alpha.

TABLE 6			
Cronbach's Alpha For STPI Variables			
	MEASURE 1	MEASURE 2	MEASURE 3
STATE ANGER	.9428	.9361	.9591
TRAIT ANGER	.9224	.8728	.2562
STATE ANXIETY	.8016	.8678	.8891
TRAIT ANXIETY	.8142	.8511	.7218

Table 6 summarizes the results:

Alpha scores are not consistent across all three measurements for trait anger. This is difficult to explain, except that perhaps subjects were tired of filling in the same test, and just answered to finish the

final testing. The alpha of .2562 for trait anger in measurement 3 was calculated on the basis of $N=8$. The raw data was reviewed, but no obvious reason emerged for this low score. State and trait anxiety, and state anger scores were comparable to those reported by Spielberger (1979)

4.2

DIFFERENCES BETWEEN PRE AND POST TEST

Paired t-tests of before and after measurements of the control group revealed no significant differences. For this reason, the data from the control group was discarded and not further analyzed.

Differences between the results obtained in treatment 1, and those obtained in treatment 2 were compared by one way analysis of variance. No significant difference was found (chi square range= .09 - .77). Results from the two treatment groups were subsequently combined, and the data analyzed as one treatment group $N=29$.

The first hypothesis, section i-iii stating that reactivity would be reduced, was rejected based on the following data: Differences between before and after levels of E, NE, and D were unaltered. The p values for the paired t-tests were as follows: E= .60, NE= .80, and D=.98. Mean values for catecholamine levels of all subjects are displayed in Table 7.

Overall catecholamine levels are quite high. Normal resting values for human subjects are E- 66.08 pg/ml, and NE= 292 pg/ml (Dhalla, K., personal communication, December 4, 1988). These values are

TABLE 7
MEAN VALUES FOR CATECHOLAMINES pg/ml

NE	RANGE	219.82-499.11
	MEAN	379.27 SD 89.07
E	RANGE	281.19-1616.69
	MEAN	626.49 SD 438.90
D	RANGE	184.73-721.05
	MEAN	423.32 SD 225.92

significantly higher for epinephrine $p=.008$, and norepinephrine $p=.02$. E, NE, and D were plotted against JAS scores, but no significant correlation emerged. Pearson correlation coefficients ranged from $-.07$ to $.15$. Catecholamine levels were also plotted against state and trait anger scores, but again, no significant correlation was seen (Pearson correlation coefficients $-.17$ to $.21$).

Variables for Type A and Type B subjects, as determined by JAS, were compared. There was no significant difference between the two sets of variables except in the case of trait anger. Trait anger was significantly higher in Type A subjects ($p=.02$). This result lends some support to the contention that anger or hostility as defined in this study, is one of the underlying toxic aspects of Type A behavior.

Resting heart rate was unaltered ($p=.61$). The mean heart rate before treatment was 59, with a SD of 12, and after treatment was 54 with a SD of 10. Because resting heart rates were so low, it was not realistic to

expect them to decrease any further. As previously mentioned, beta blockade significantly affected this variable.

Blood pressure differences were analyzed separately for the genders because analysis of variance indicated a significant difference between the two groups. ($p=.02$ Systolic, and $p=.05$ Diastolic). Men demonstrated a mean decrease of 3.00 mm Hg, whereas women showed a mean increase of 10.80 mm Hg. in systolic blood pressure. Diastolic blood pressure again decreased in males, with a mean decrease of .83 mm Hg. and increased in females, with a mean increase of 10.80 mm Hg.

The follow-up blood pressure readings performed only on the first treatment group showed a tendency towards decreasing, but these results did not reach statistical significance ($p=.11$ Systolic, and $p=.25$ Diastolic).

Rate pressure product was also calculated and differences compared. Rate pressure product ($RPP = \text{systolic blood pressure} \times \text{resting heart rate}$) is believed to indicate myocardial oxygen consumption (Sung, Wilson, Robinson, Thadani, & Lovallo, 1988). There was no significant change in this variable.

EKG variables were slightly improved after treatment. All EKGs were interpreted both by the researcher and an expert cardiologist. Interrater reliability was .91. Changes in ST segment were measured in each lead in millimeters. These were compared by t-tests, however the differences did not reach significance. The cardiologist's overall impression of each EKG is as follows:

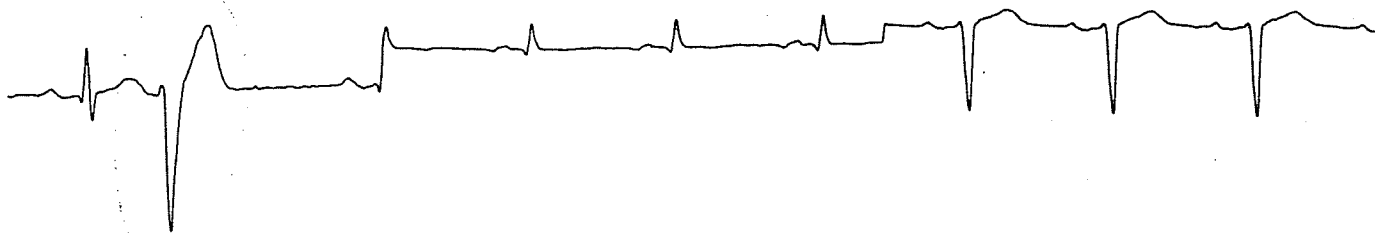
TABLE 8
Ratings of Overall EKG

	IMPROVED	NO CHANGE	WORSE
EXPERIMENTAL N=29	12 (40%)	12 (40%)	6 (20%)
CONTROL N=14	2 (14%)	8 (57%)	4 (29%)

The difference in the number of improved EKGs after treatment is significantly different from the control group($p = .001$).

Two subjects demonstrated a marked arrhythmia reduction following treatment. The before and after rhythm strips follow.

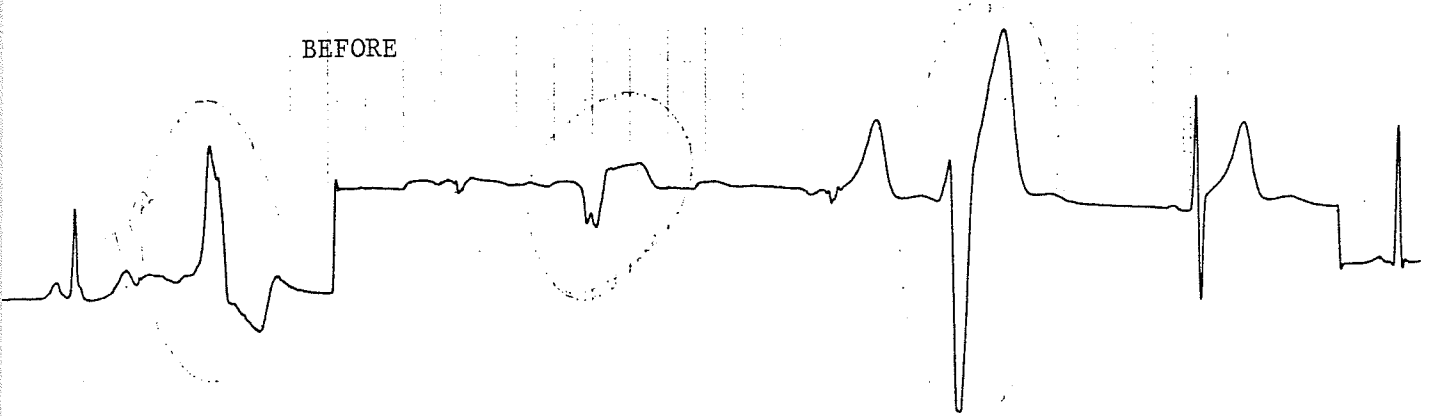
BEFORE



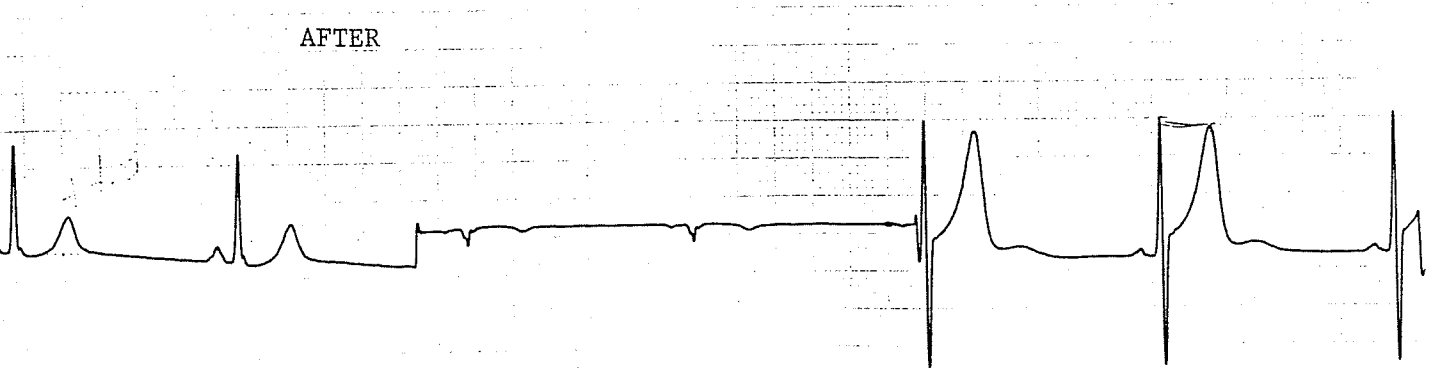
AFTER



BEFORE



AFTER



There were no significant changes noted in PR interval, QRS complex, or QT interval. No changes were seen in atrial or ventricular hypertrophy, bundle branch block, or hemiblock.

Hypothesis 2 sections ii and iv were accepted based on the results of the state and trait anger and anxiety scores. Trait anger, which was defined as the individual's genetic predisposition toward hostility, was not significantly altered in the entire group ($p = .67$). However when males and females were analyzed separately, females ($N=5$) demonstrated a significant decrease in trait anger ($p = .02$). This finding for females is to be viewed with caution due to the extremely small sample size, and the questionable reliability of the final measurement for trait anger. State anger, which was defined as the individual's present state of anger, was not significantly altered in either group.

Trait anxiety was significantly altered in the overall group ($p = .05$). When males and females were analyzed separately, males ($N=24$), trait anxiety differences reached significance with $p = .007$. Females demonstrated no significant change ($p = .67$). State anxiety was not significantly altered in either group (Males $p = .11$, and Females $p = .82$).

4.3

SUMMARY

Data Analysis revealed the following information; Hypothesis 1 sections i-iii regarding physiological reactivity were rejected. There were no significant reductions in catecholamine levels, heart rate, or blood pressure. There was some evidence of decreased blood pressure in

males, but not in females. Longer practice with relaxation, and new behaviors produced a favourable change in blood pressure, but these changes did not reach statistical significance. There was evidence of improved EKG variables. For this reason Hypothesis 1 section iv was accepted. These results are basically consistent with Seraganian et al (1987) who was unable to alter reactivity with stress reduction, exercise, or weight training.

There was no correlation of catecholamine levels with JAS scores. Neither was there a correlation of catecholamines with state or trait anger. This is inconsistent with what the literature predicted. One would expect the presence of Type A and presence of anger/hostility to correlate with catecholamine levels. When JAS classified Type A and Type B variables were compared, trait anger was significantly higher in Type A subjects. This is consistent with the literature which predicts anger/hostility as an underlying psychological dimension of the Type A personality.

Hypothesis 2 sections ii and iv were accepted based on scores from state and trait anger and anxiety. Males showed a significant reduction in trait anxiety, but females did not. Females demonstrated a significant decrease in trait anger, but males did not. This finding on anger must be regarded cautiously, because alpha scores for trait anger are not consistent across all three measurements.

4.4 SUMMARY OF WRITTEN EVALUATION

The subjective evaluations were very favourable. Twenty-five evaluations were returned to the researcher. Twenty-four of the twenty-five felt they benefitted from the program. They indicated the most valuable parts were learning they experienced stress at all, sharing their feelings with others, and realizing others had similar problems. Many subjects commented on the value of relaxation exercises. Many of these people had never experienced complete relaxation previously, and were unable to recognize tight muscles in their bodies.

Four individuals mentioned that this program helped them to control their angry feelings. Most subjects suggested that the program should be longer, and include more discussion time. Almost all participants requested that there be a refresher program, because it is difficult to change old behaviors.

One participant stated after the communication session: " I was finally able to say something to my kids when they bug meusually I just get all worked up inside and say nothing! " One participant complained about the " irrelevant discussion by some participants who play to an audience . A quote from one subject: " I think it is a good program. I have learned to relax more and not get so irritated about things that are happening around me ". One subject reported at his final evaluation that he had finally planned a fishing trip, which he had wanted to do for a year. He did not feel he should until the 'Wish List' gave him permission.

Perhaps the most valuable data was obtained from the subjective evaluations. They provided a perspective which is not measurable by research statistics.

The next chapter contains a discussion of the research results. Implications for nursing and future research are also mentioned.

Chapter V

DISCUSSION

In this chapter, the results will be discussed in light of the methodological limitations. Implications for nursing will be addressed, along with considerations for future nursing research.

5.1

DISCUSSION OF RESULTS

5.1.1

Type A Behavior Pattern

The sample consisted of 14 Type A, and 15 Type B individuals. All had experienced heart disease within the past 3 years. This result would suggest that the Type A construct as measured by the JAS in this sample was not a strong indicator for heart disease. As the literature review indicated, the JAS identifies only 70% of Type A individuals compared to the SI. Perhaps use of a more sensitive measure for Type A would have yielded different results.

These results also lend some support to the contention that the psychological dimensions underlying Type A behavior have not been elucidated. There may be some indication that some unidentified psychological dimension predisposed these individuals to heart disease. All of the subjects did have at least one other classic risk factor. The most common was a family history of heart disease (N=26). Twenty of the

twenty-six believed their behavior was similar to that of the family member who developed heart disease. This result is consistent with research that has found the development of Type A behavior may be the result of parental influences, although the mechanism is not known (Keltikangas-Jarvinen, 1987).

5.1.2

Anger/Hostility

Measurements of hostility and anger, as measured by the STPI, were not a strong indicator of heart disease. Measurements of state and trait anger were in the normal range. The mean state anger scores before treatment were: males = 13.18 SD 6.09, and females = 12.57 SD 3.78. The mean trait anger scores before treatment were: males = 22.35 SD 7.94, and females = 19.14 SD 3.98. These scores were not significantly different from the mean scores of the general population of working adults over age 35 (State anger: males = 13.29 SD 4.93, and females = 13.67 SD 5.24; Trait anger, males = 17.41 SD 5.19, and females = 18.13 SD 4.82). These results may also indicate that anger/hostility, as measured by the STPI, are not linked to heart disease.

As Dembroski and Costa (1987) stated, anger/hostility is a multidimensional construct. They reported that the state/trait anger measurements were correlated heavily with indices of neuroticism, and were not linked to CHD end points in two recent studies. Since other research using different measures of anger/hostility do correlate with CHD, use of another measure may have been more helpful.

Scores of the state-trait anger scale were not correlated with JAS scores, or with measurements of reactivity. This result would also suggest that the STPI does not tap the psychological dimensions underlying predisposition to heart disease.

5.1.3

Physiological Reactivity

Physiological reactivity was measured with E and NE levels, blood pressure, heart rate, and EKG tracings. Paired t-tests comparing baseline levels of E and NE to values for normal resting subjects indicated that subjects' levels were significantly higher for E ($p=.008$) and NE ($p=.02$). This finding supports the hypothesis that high levels of circulating catecholamines are associated with damage to the myocardium. It was assumed that all subjects who volunteered for the study were under chronic stress. Levels of baseline E and NE would support this assumption. Blood pressure was not significantly different from that of normal resting subjects. As previously mentioned, heart rate was affected by beta blockade, and so could not be used as a reliable indicator of reactivity.

Levels of catecholamines were not correlated with JAS measurements or scores of anger/hostility. This again would suggest that neither the JAS or the STPI were measuring the psychological dimension underlying high reactivity. The high levels of catecholamines support Strelau's model, which indicates that high reactivity underlies heart disease.

When Type A and Type B variables were compared, Type A subjects had significantly higher scores on the trait anger test. This may suggest

that trait anger or hostility as defined in this study underlies Type A behavior.

Before and after levels of catecholamines were essentially unaltered. This may indicate that Group Type A behavior counselling and relaxation training over a period of 5 weeks does little to alter physiological reactivity. This result may lend support to Strelau's theory which indicates that physiological reactivity is a relatively stable and typical intensity of response. That catecholamine levels were unaltered is consistent with Seraganian et al (1987) who failed to alter physiological reactivity with physical exercise or stress management.

Follow-up blood pressures taken 5 weeks after the end of the first treatment phase suggested that reactivity may take a longer period of time than 10 weeks to alter. The measurements taken 10 weeks after the beginning of the experiment did demonstrate a trend towards being lower, though this did not reach statistical significance. Perhaps, if such a treatment is to be successful, a longer duration of treatment must be undertaken.

EKG tracings were significantly improved. This result was the only measure of reactivity which did improve. It is interesting to note that EKG variables were improved even though catecholamine levels were not decreased. This may have resulted from PSNS stimulation, or perhaps the production of some endogenous opiod such as GOBA.

5.1.4

Discussion of the Research Question

Can the stress response of TABP individuals be attenuated in order to reduce cardiovascular morbidity and mortality? Specifically, can Group Type A behavior counselling with relaxation training reduce physiological reactivity and reduce ineffective coping or auxiliary actions? The results of this experiment indicate that this type of intervention offers some benefits to rehabilitating cardiac patients. Measurements of reactivity were generally unaltered, but treatment over 10 weeks was more effective than treatment over 5 weeks. These results may offer some guidelines as to the length of treatment necessary.

State anxiety in males and state anger in females were significantly decreased over the course of treatment. This result indicates, within Strelau's framework, that it is possible to reduce ineffective coping through reduction of auxiliary behaviors. These changes may reflect an improved capacity for subjects to recognize and avert situations of high reactivity. At the very least, avoidance of ineffective coping may help individuals feel more in control of situations.

It was interesting to note that males and females differed in 3 measurements in this study. Men demonstrated a statistically significant decrease in trait anxiety, whereas women did not. Conversely, women demonstrated a decrease in trait anger, whereas men did not. As well, women showed a tendency to increase blood pressure over the course of the treatment, but men demonstrated a tendency to decrease blood pressure. Unfortunately, these results must be viewed with caution, because the sample size of women was small. The results do however

suggest that males and females responded differently to the treatment offered. There is some research to indicate that anxious passive people secrete more epinephrine. Epinephrine augments blood pressure by increased cardiac output. Since females did not decrease anxiety, it may be assumed they are anxious, and thus demonstrated increased blood pressure (Diamond, 1982). This conclusion is speculative. Because of the small sample size of females, the association of an increased blood pressure due to a persistence in anxiety in women cannot be confirmed.

The subjects' evaluation provided the most favourable results. The majority of subjects believed the program was beneficial to them. This in itself, is an indicator that such a program may help individuals with heart disease. There is a mind body interaction which defies research. That psychological cues can activate and prevent disease can rarely be proven. As Cousins (1983) stated

" medicine has with difficulty exited from the quagmire of subjectivism, and no one is eager to replace the certain compass of science with uncertain prediction to be garnered from tea leaves " (16).

But how is one to objectivize the power of thought as a means of influencing the most intimate of bodily functions (Cousins, 1983) ?

Since stress is perceived by the mind and communicated to the body through neurohormonal pathways, it is obvious that thought has the potential to cause heart disease. It is possible that a belief that one has increased control over their perceptions of stress, could over time, translate into measurable physiological indicators. At the very least, individuals have become more aware of what makes them uncomfortable.

Many subjects commented that this program helped them become aware of their bodies. This would suggest a first step toward prevention of disease. One subject commented that the treatment "helped (him) realize (his) habit of reacting and getting angry at situations (he) could not control". Another subject claimed that the most helpful aspect was that he could now recognize and control emotions such as anger and frustration. If even one person became more aware, and perceived greater control, then the program was worthwhile. Whether this change in coping behaviors means improved health, remains to be seen. These results are not scientifically valid and measurable, but should not be discarded because they may provide insight into the mechanism of the linkage between psychological stress and heart disease.

5.2

LIMITATIONS

All results must be viewed with caution for several reasons. First, the sample size was small. This was especially true with respect to female participants. Another study with a much larger sample size would be required to confirm the suggested results.

There was a wide range of variability in levels of E and NE (E = 281.19-1616.69, NE = 219.82-499.11). This may suggest either that some subjects were stressed immediately prior to having their blood drawn, or that there was some problem with the analysis technique. Subjects were tested in the early morning, so possibly the early morning traffic, or a restless night may have served as a stressor to certain individuals. There was no attempt made to measure the perceived stress in

individuals' life situations, or to control the situation immediately prior to blood sampling. Much of the research on physiological reactivity has been performed when the subject is stressed immediately prior to measurement in the laboratory. Perhaps use of this method would have made results more consistent.

It is not known if subjects actually did the relaxation exercises prescribed or practised the recommended behavioral changes. The research relied on the subjects' adherence to the program. There is no way of knowing if subjects were in fact compliant. Roskies (1987) suggested charging participants a sum of money to ensure they would complete the requirements of the program. This may be a consideration for future research.

The study may have been complicated by the medications and the associated medical conditions. Though statistical analysis of the medications and the associated medical conditions revealed that only beta blockade affected the variables, it is not known how these factors interacted with one another. Results would have been more reliable if the subjects were unmedicated and had no associated medical conditions.

Subjects had either a myocardial infarction or coronary artery bypass surgery. It is not known if there was a difference between the two groups. Also some participants included their significant other in the treatment. These two factors may have confounded the results.

The method of sampling may have introduced some sampling bias, as this was a non-probability sample. A study using a probability sample would be helpful.

Considering the limitations of the study, the results can not be generalized to a larger population. It must be left to future research to correct the methodological flaws. At best, these results may be seen to represent the potential benefits to individuals enrolled in a cardiac rehabilitation facility such as the Reh-Fit Centre.

5.3

IMPLICATIONS FOR NURSING RESEARCH

This research offered some implications for primary, secondary, and tertiary prevention. The treatment was simple, cost-effective, and non-invasive. Though the results demonstrated limited success, there was a statistically significant decrease in trait anger and anxiety. Rahe et al. (1979) advised that when a treatment has no cost to the individual, but demonstrates some benefit, however minimal, it should not go unexplored.

Within Strelau's framework, the treatment affected the endpoint of ineffective coping, and presumably the individuals' feelings of well being. This may indicate a potential benefit for the treatment of any client model.

That this program made any difference at all to patients at the Reh-Fit is surprising. These individuals have already changed their lifestyles considerably through exercise, diet modification, and reduction in alcohol and nicotine ingestion. If this type of program can further improve the individuals feelings of well being, it can do no harm.

5.4

CONSIDERATIONS FOR FUTURE RESEARCH

This study suggests several areas for continued research in nursing. The study should be repeated on a larger sample size, preferably in subjects with heart disease who are not medicated and with no associated medical conditions. It would also be interesting to explore a larger sample size of females to more clearly delineate the differences between male and female cardiac patients.

Since subjects indicated a desire for a longer treatment period, and blood pressure readings were lower after 10 weeks than after 5 weeks, there is reason to believe that the program should be lengthened. Evaluation of a longer program would be helpful. In addition, a longer follow-up period would assist in determining if these changes are sustained.

Since the most favourable results were gleaned from the subjects' evaluations, it may be interesting to undertake a descriptive study concerning subjects' perceptions of stress and methods of coping. This may provide valuable data for development of a more effective stress reduction program.

Since heart disease is a large problem in our society, a longitudinal study with a well population may help to clarify whether such a program is helpful in preventing the first coronary event. Also, since some research suggested that anger/hostility was related to mortality from all causes, it would be helpful to know if this treatment would aid in preventing other types of diseases.

5.5

SUMMARY

This research attempted to design and implement a program of Group Type A behavior counselling and relaxation training with a group of cardiac patients. The study was organized according to the individual differences approach to the concept of stress. Within this framework, TABP is an ineffective way of coping with environmental situations. The TABP person exhibits maladaptive auxiliary coping behaviors and a high level of physiological reactivity. This process leads to the development of cardiovascular disease.

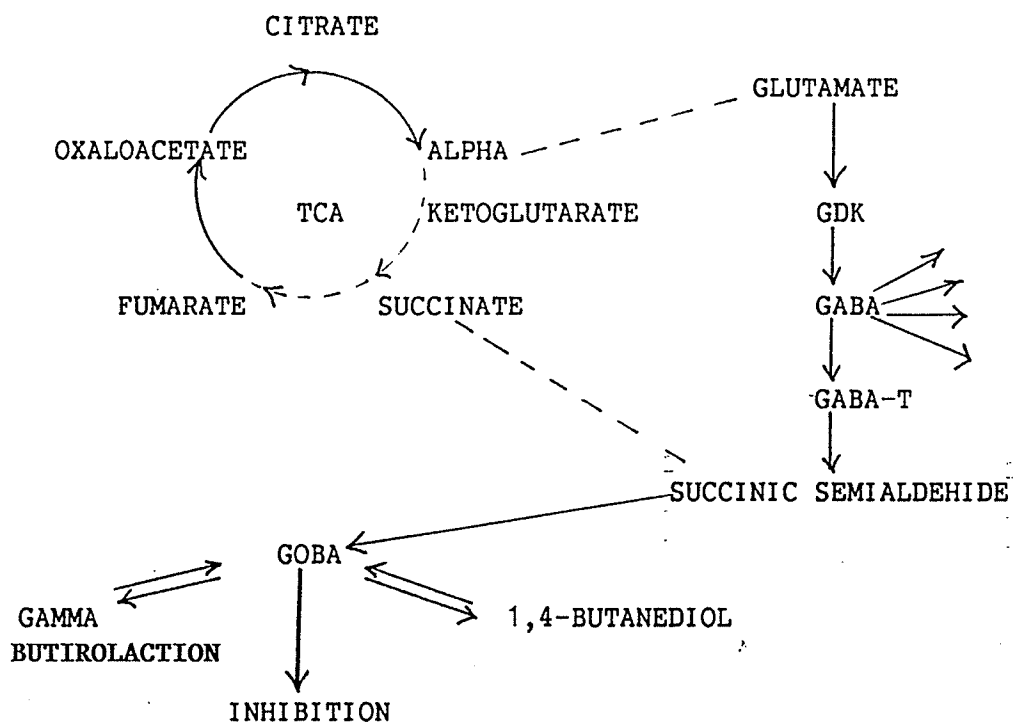
Results of the research indicated that the level of physiological reactivity was not altered over the course of 5 weeks, but did show a tendency to reduction after 10 weeks. Auxiliary actions such as trait anger, was reduced in females after 5 weeks, but not in males. Trait anxiety was statistically significantly reduced in males, but not in females.

These results offered some support for the benefits of such a program for rehabilitating cardiac patients. Because the treatment is simple, cost effective, and non-invasive, nurses may easily incorporate such treatment into care of the cardiac client, as well as other clients with stress induced health problems.

APPENDIX 1

FIG. 1

Correlation of GABA system and the cycle of tricarmonic acids in the brain in emotionally painful stress. Fat dotted line shows inhibited and fat continuous line shows activated links of metabolism. (Meerson, 1980, 483)



APPENDIX 2

SELF-ANALYSIS QUESTIONNAIRE

STP1 FORM X-1

SPIELBERGER, 1979

DIRECTIONS: A number of statements that people use to describe themselves are given below. Read each statement and then circle the appropriate number which indicates how you feel right now. 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	SOME WHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	1	2	3	4
2. I feel like exploring my environ- ment	1	2	3	4
3. I am furious	1	2	3	4
4. I am tense	1	2	3	4
5. I am curious	1	2	3	4
6. I feel like banging on a table	1	2	3	4
7. I feel at ease	1	2	3	4
8. I feel interested	1	2	3	4
9. I feel angry	1	2	3	4
10. I am presently worrying over possible misfortunes	1	2	3	4
11. I feel inquisitive	1	2	3	4
12. I feel like yelling at somebody	1	2	3	4
13. I feel nervous	1	2	3	4
14. I am in a questioning mood . .	1	2	3	4

		NOT AT ALL	SOME WHAT	MODERATELY SO	VERY MUCH SO
15.	I feel like breaking things .	1	2	3	4
16.	I am jittery	1	2	3	4
17.	I feel stimulated	1	2	3	4
18.	I am mad	1	2	3	4
19.	I am relaxed	1	2	3	4
20.	I feel mentally active	1	2	3	4
21.	I feel irritated	1	2	3	4
22.	I am worried	1	2	3	4
23.	I feel bored	1	2	3	4
24.	I feel like hitting someone .	1	2	3	4
25.	I feel steady	1	2	3	4
26.	I feel eager	1	2	3	4
27.	I am burned up	1	2	3	4
28.	I feel frightened	1	2	3	4
29.	I feel disinterested	1	2	3	4
30.	I feel like swearing	1	2	3	4

SELF-ANALYSIS QUESTIONNAIRE

STPI FORM X-2

DIRECTIONS: A number of statements that people use to describe themselves are given below. Read each statement and then circle the appropriate number which indicates 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.

		NOT AT ALL	SOME WHAT	MODERATELY SO	VERY MUCH SO
31.	I am a steady person	1	2	3	4
32.	I feel like exploring my environment	1	2	3	4
33.	I am quick tempered	1	2	3	4
34.	I feel satisfied with myself . .	1	2	3	4
35.	I feel curious	1	2	3	4
36.	I have a fiery temper	1	2	3	4
37.	I feel nervous and restless . . .	1	2	3	4
38.	I feel interested	1	2	3	4
39.	I am a hotheaded person	1	2	3	4
40.	I wish I could be as happy as others seem to be	1	2	3	4
41.	I feel inquisitive	1	2	3	4
42.	I get angry when I am slowed down by mistakes	1	2	3	4
43.	I feel like a failure	1	2	3	4
44.	I feel eager	1	2	3	4
45.	I feel annoyed when I am not given recognition for doing good work .	1	2	3	4

		NOT AT ALL	SOME WHAT	MODERATELY SO	VERY MUCH SO
46.	I get in a state of tension or turmoil as I think over my recent concerns and interests.	1	2	3	4
47.	I am in a questioning mood . . .	1	2	3	4
48.	I fly off the handle	1	2	3	4
49.	I feel secure	1	2	3	4
50.	I feel stimulated	1	2	3	4
51.	When I get mad I say nasty things	1	2	3	4
52.	I lack self-confidence	1	2	3	4
53.	I feel disinterested	1	2	3	4
54.	It makes me furious when I am criticized in front of others . . .	1	2	3	4
55.	I feel inadequate	1	2	3	4
56.	I feel mentally active	1	2	3	4
57.	When I get frustrated, I feel like hitting someone	1	2	3	4
58.	I worry too much over something that really does not matter . . .	1	2	3	4
59.	I feel bored	1	2	3	4
60.	I feel infuriated when I do a good job and get a poor evaluation . .	1	2	3	4

Jenkins Activity Survey

C. David Jenkins, Ph.D. Stephen J. Zyzanski, Ph.D. Ray H. Rosenman, M.D.

FORM C

Age	

Male ☐

Female ☐

The *Jenkins Activity Survey* asks questions about aspects of behavior that have been found helpful in medical diagnosis. Each person is different, so there are no "right" or "wrong" answers.

For each question, choose the answer that is true for you, and fill in the space in front of that answer. Use a

black lead pencil, and make your marks heavy and dark. Mark only one answer for each question. If you change your mind, erase the old mark completely.

Do not make any stray marks.

1. Do you ever have trouble finding time to get your hair cut or styled?
A ☐ Never
B ☐ Occasionally
C ☐ Almost always
2. How often does your job "stir you into action"?
A ☐ Less often than most people's jobs
B ☐ About average
C ☐ More than most people's jobs
3. Is your everyday life filled mostly by
A ☐ problems needing a solution?
B ☐ challenges needing to be met?
C ☐ a rather predictable routine of events?
D ☐ not enough things to keep me interested or busy?
4. Some people live a calm, predictable life. Others often find themselves facing unexpected changes, frequent interruptions, inconveniences, or "things going wrong." How often are you faced with these minor (or major) annoyances or frustrations?
A ☐ Several times a day
B ☐ About once a day
C ☐ A few times a week
D ☐ Once a week
E ☐ Once a month or less
5. When you are under pressure or stress, what do you usually do?
A ☐ Do something about it immediately
B ☐ Plan carefully before taking any action
6. Ordinarily, how rapidly do you eat?
A ☐ I'm usually the first one finished.
B ☐ I eat a little faster than average.
C ☐ I eat at about the same speed as most people.
D ☐ I eat more slowly than most people.
7. Has your spouse or a friend ever told you that you eat too fast?
A ☐ Yes, often
B ☐ Yes, once or twice
C ☐ No, never
8. How often do you find yourself doing more than one thing at a time, such as working while eating, reading while dressing, or figuring out problems while driving?
A ☐ I do two things at once whenever practical.
B ☐ I do this only when I'm short of time.
C ☐ I rarely or never do more than one thing at a time.
9. When you listen to someone talking, and this person takes too long to come to the point, how often do you feel like hurrying the person along?
A ☐ Frequently
B ☐ Occasionally
C ☐ Almost never
10. How often do you actually "put words in the person's mouth" in order to speed things up?
A ☐ Frequently
B ☐ Occasionally
C ☐ Almost never



THE PSYCHOLOGICAL CORPORATION

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11. If you tell your spouse or a friend that you will meet somewhere at a definite time, how often do you arrive late?
☐ A Once in a while
☐ B Rarely
☐ C I am never late.
12. How often do you find yourself hurrying to get places even when there is plenty of time?
☐ A Frequently
☐ B Occasionally
☐ C Almost never
13. Suppose you are to meet someone at a public place (street corner, building lobby, restaurant) and the other person is already 10 minutes late. What will you do?
☐ A Sit and wait
☐ B Walk about while waiting
☐ C Usually carry some reading matter or writing paper so I can get something done while waiting
14. When you have to "wait in line" at a restaurant, a store, or the post office, what do you do?
☐ A Accept it calmly
☐ B Feel impatient but not show it
☐ C Feel so impatient that someone watching can tell I am restless
☐ D Refuse to wait in line, and find ways to avoid such delays
15. When you play games with young children about 10 years old (or when you did so in past years), how often do you purposely let them win?
☐ A Most of the time
☐ B Half the time
☐ C Only occasionally
☐ D Never
16. When you were younger, did most people consider you to be
☐ A definitely hard-driving and competitive?
☐ B probably hard-driving and competitive?
☐ C probably more relaxed and easygoing?
☐ D definitely more relaxed and easygoing?
17. Nowadays, do you consider yourself to be
☐ A definitely hard-driving and competitive?
☐ B probably hard-driving and competitive?
☐ C probably more relaxed and easygoing?
☐ D definitely more relaxed and easygoing?
18. Would your spouse (or closest friend) rate you as
☐ A definitely hard-driving and competitive?
☐ B probably hard-driving and competitive?
☐ C probably relaxed and easygoing?
☐ D definitely relaxed and easygoing?
19. Would your spouse (or closest friend) rate your general level of activity as
☐ A too slow—should be more active?
☐ B about average—busy much of the time?
☐ C too active—should slow down?
20. Would people you know well agree that you take your work too seriously?
☐ A Definitely yes
☐ B Probably yes
☐ C Probably no
☐ D Definitely no
21. Would people you know well agree that you have less energy than most people?
☐ A Definitely yes
☐ B Probably yes
☐ C Probably no
☐ D Definitely no
22. Would people you know well agree that you tend to get irritated easily?
☐ A Definitely yes
☐ B Probably yes
☐ C Probably no
☐ D Definitely no
23. Would people who know you well agree that you tend to do most things in a hurry?
☐ A Definitely yes
☐ B Probably yes
☐ C Probably no
☐ D Definitely no
24. Would people who know you well agree that you enjoy a "contest" (competition) and try hard to win?
☐ A Definitely yes
☐ B Probably yes
☐ C Probably no
☐ D Definitely no
25. How was your temper when you were younger?
☐ A Fiery and hard to control
☐ B Strong but controllable
☐ C No problem
☐ D I almost never got angry.
26. How is your temper nowadays?
☐ A Fiery and hard to control
☐ B Strong but controllable
☐ C No problem
☐ D I almost never get angry.

27. When you are in the midst of doing a job and someone (not your boss) interrupts you, how do you usually feel inside?
- A ☐ I feel O.K. because I work better after an occasional break.
 - B ☐ I feel only mildly annoyed.
 - C ☐ I really feel irritated because most such interruptions are unnecessary.
28. How often are there deadlines on your job?
- A ☐ Daily or more often
 - B ☐ Weekly
 - C ☐ Monthly or less often
 - D ☐ Never
29. These deadlines usually carry
- A ☐ minor pressure because of their routine nature.
 - B ☐ considerable pressure, since delay would upset my entire work group.
 - C ☐ Deadlines never occur on my job.
30. Do you ever set deadlines or quotas for yourself at work or at home?
- A ☐ No.
 - B ☐ Yes, but only occasionally
 - C ☐ Yes, once a week or more
31. When you have to work against a deadline, what is the quality of your work?
- A ☐ Better
 - B ☐ Worse
 - C ☐ The same (Pressure makes no difference.)
32. At work, do you ever keep two jobs moving forward at the same time by shifting back and forth rapidly from one to the other?
- A ☐ No, never
 - B ☐ Yes, but only in emergencies
 - C ☐ Yes, regularly
33. Are you content to remain at your present job level for the next five years?
- A ☐ Yes
 - B ☐ No, I want to advance.
 - C ☐ Definitely no; I strive to advance and would be dissatisfied if not promoted in that length of time.
34. If you had your choice, which would you rather get?
- A ☐ A small increase in pay without a promotion to a higher level job
 - B ☐ A promotion to a higher level job without an increase in pay
35. In the past three years, have you ever taken less than your allotted number of vacation days?
- A ☐ Yes
 - B ☐ No
 - C ☐ My type of job does not provide regular vacations.
36. In the last three years, how has your personal yearly income changed?
- A ☐ It has remained the same or gone down.
 - B ☐ It has gone up slightly (as the result of cost-of-living increases or automatic raises based on years of service).
 - C ☐ It has gone up considerably.
37. How often do you bring your work home with you at night, or study materials related to your job?
- A ☐ Rarely or never
 - B ☐ Once a week or less
 - C ☐ More than once a week
38. How often do you go to your place of work when you are not expected to be there (such as nights or weekends)?
- A ☐ It is not possible on my job.
 - B ☐ Rarely or never
 - C ☐ Occasionally (less than once a week)
 - D ☐ Once a week or more
39. When you find yourself getting tired on the job, what do you usually do?
- A ☐ Slow down for a while until my strength comes back
 - B ☐ Keep pushing myself at the same pace in spite of the tiredness
40. When you are in a group, how often do the other people look to you for leadership?
- A ☐ Rarely
 - B ☐ About as often as they look to others
 - C ☐ More often than they look to others
41. How often do you make yourself written lists to help you remember what needs to be done?
- A ☐ Never
 - B ☐ Occasionally
 - C ☐ Frequently
- For questions 42-46, compare yourself with the average worker in your present occupation, and mark the most accurate description.
42. In amount of effort put forth, I give
- A ☐ much more effort.
 - B ☐ a little more effort.
 - C ☐ a little less effort.
 - D ☐ much less effort.

APPENDIX 3

STRESS REDUCTION PROGRAM

PARTICIPANTS NEEDED

ARE YOU INTERESTED?????

IF YOU HAVE HAD A HEART ATTACK WITHIN THE PAST 2 YEARS
YOU ARE ELIGIBLE.

This will be a stress reduction research program offered at the Reh-Fit centre by a student in the Master of Nursing program at University of Manitoba. The program will begin in January, 1988. There is a requirement for 90 participants. If you are interested in this program, please place your name and telephone number at the bottom of this page. The researcher will call you and tell you more about the study. This form does not obligate you in any way.

PLEASE HAND THIS FORM INTO THE FRONT DESK

HOPE TO SEE YOU SOON!

YES I AM INTERESTED IN FINDING OUT MORE ABOUT
THIS STUDY. I UNDERSTAND THAT THIS FORM
DOES NOT OBLIGATE ME IN ANY WAY.

NAME: _____

PHONE NUMBER: _____

THE BEST TIME TO REACH ME IS: _____

THANK YOU, LINDA TURNER (RESEARCHER)

QUESTIONNAIRE

DATE: _____ GENDER: _____

NAME: _____

ADDRESS: _____

LOCAL PHONE: _____ BUSINESS PHONE: _____

AGE: _____ OCCUPATION: _____

MARITAL STATUS: _____ YEARS: _____ CHILDREN: _____

FAMILY PHYSICIAN: _____

DO YOU WISH TO HAVE YOUR RESULTS SENT TO YOUR PHYSICIAN?

YES _____ NO _____ (Please check one)

WHEN DID YOU HAVE YOUR HEART ATTACK? _____

HOW MANY HAVE YOU HAD? _____

WHEN DID YOU HAVE HEART SURGERY? _____

WHAT KIND OF HEART SURGERY HAVE YOU HAD? _____

HEIGHT _____ WEIGHT _____

BLOOD PRESSURE _____ PULSE _____

DID YOU AND DO YOU:

SMOKE? _____ HOW MUCH PER DAY? _____

DRINK COFFEE? _____ HOW MUCH PER DAY? _____

DRINK TEA? _____ HOW MUCH PER DAY? _____

DRINK BEER? _____ HOW MUCH PER DAY? _____

DRINK LIQUOR? _____ HOW MUCH PER DAY? _____

PLEASE LIST THE MEDICATIONS YOU ARE CURRENTLY TAKING ALONG WITH
THEIR DOSAGES:

DO YOU HAVE ANY MEDICAL PROBLEMS OTHER THAN HEART DISEASE?

YES _____ NO _____

PLEASE LIST THESE CONDITIONS

IS THERE A HISTORY OF HEART DISEASE IN YOUR FAMILY? YES __ NO __

WHAT KIND OF HEART DISEASE? _____

WHAT RELATIONSHIP IS THE FAMILY MEMBER TO YOU? _____

DO YOU THINK THIS PERSON INFLUENCED YOUR BEHAVIOR? PLEASE

COMMENT _____

EXPLANATION OF RESEARCH

Thank you for agreeing to participate in this stress reduction program. You may decide you do not wish to continue at any time during this study. If this is the case, just let the researcher know. This will not affect your health care in any way.

You will be asked to attend four appointments with the researcher of approximately one-half hour duration. These will be arranged at your convenience, and will take place in your home, or at the Reh-Fit Centre. During these times you will be asked to have the following measurements done 3 times: blood pressure, pulse, weight, electrocardiogram, blood test, and a paper and pencil test. You will be asked to follow a special diet 2 days prior to having your blood test each time. You will also be asked some information about your heart attack or surgery.

Next, you will be asked to attend 5 group sessions of about one and a half hour duration. These will be held during the day and repeated during the evening, so that you will be able to fit the sessions into your schedule more easily. The same program will be held in March, and May. You will be asked to attend one of these times.

All information that you give the researcher will be kept strictly confidential. You are not required to answer any questions that you do not wish to. A copy of the research results will be sent to you upon completion of the project.

If you wish, a copy of your results will be sent to your physician.

The research will be conducted by Linda Turner, who is a masters student in nursing at the University of Manitoba. If you have any further questions, please contact the researcher at 284-1833.

Thank you.

CONSENT

This certifies that I, _____, having met the criteria for this research study, agree to participate. I am aware that the research is being conducted by Linda Turner, a masters student in nursing at the University of Manitoba, and is supervised by Dr. L. Degner. I have been given a written explanation of the study and have had an opportunity to ask questions.

I understand that my participation involves attending 4 one-half hour appointments with the researcher. I understand that during these appointments, I will have the following measurements taken three times: blood pressure, pulse, weight, electrocardiogram, blood test, and a paper and pencil test. I understand I will be asked to follow a special diet 2 days prior to having the blood test done. I am also aware that I will be asked questions about my heart condition. I understand that I do not have to answer any questions I do not feel comfortable with.

I am aware that I will be asked to attend 5 one hour sessions at the Reh-Fit Centre in March, or in May. I understand these sessions will be concerned with stress management. I understand that I am participating voluntarily and that I am free to withdraw at any time.

I give my permission to Linda Turner to gather relevant information during this study. I have been informed that confidentiality and my anonymity will be protected. I understand I will be sent a copy of the research results at the end of this study. I have been given the option of sending my results to my doctor

DATE: _____

CLIENT: _____

WITNESS: _____

I would like the results of this research Yes____ No____

I would like the results of this research
sent to my doctor Yes____ No____

DIET

Two days before you have your blood drawn for this study, you will be asked to follow these guidelines.

1. Keep the intake of the following items relatively constant: coffee, tea, cocoa, fruits, and sweets.
2. No bananas
3. Keep alcohol and cigarette smoking to a low level or stop completely.
4. If you take nitroglycerine pills 2 days before the test, let the researcher know.
5. Keep a record of your food intake for two days before the blood test.
6. When you have your blood drawn in the morning do not have breakfast before.
7. If you must take a nitroglycerine pill, please list it on your dietary intake sheet.

THANK YOU

APPENDIX 4

STRESS MANAGEMENT PROGRAM

This program is designed to help you improve your skills at coping with the stressors in your life. Your commitment to making the program work for you is essential. What you put in, you will get out. You must practice the homework assignments in order to get any benefit from this instruction. Remember, you don't learn any new skill without practice.

Stress is the state that you experience when you are facing an important challenge, or threat, and you perceive an imbalance between the demands and your resources. Stress is a specific kind of interaction between you and the environment.

STRESS arises when:

1. You perceive a situation of challenge, threat , or harm.
2. You consider the outcome important to your welfare.
3. You are uncertain whether you will be able to meet the challenge or avoid the threat.

During the course of this program, you will learn basic stress management skills. The ABC's of stress management are:

- A. SELF- AWARENESS- What do you have to know about yourself to institute change?
- B. DEVELOPING NEW SKILLS- What do you have to do to institute change?
- C. APPLYING NEW SKILLS- How do you apply the new skills to daily life?

The program sessions will be as follows:

1. INTRODUCTION AND THE CONCEPT OF SELF TALK
2. TYPE A BEHAVIOR PATTERN
3. BASIC COMMUNICATION SKILLS
4. ASSERTION VS AGGRESSION AND ANGER MANAGEMENT
5. TIME MANAGEMENT AND PROTECTING YOUR INVESTMENT
IN STRESS MANAGEMENT

SESSION 1

1. MOVIE: UNDERSTANDING STRESS AND STRAIN (DISNEY, 1968)
2. SELF TALK
3. BODY SCANNING
4. RELAXATION EXERCISE

SELF TALK

(Davis et al., 1982)

People are not disturbed by events, but by the view they take of them. (Epictetus)

Almost every minute of your conscious life you are engaging in self-talk, your internal thought language. In these sentences, you describe and interpret the world. If the self-talk is accurate and in touch with reality, you function well. If it is irrational and untrue, then you experience stress and emotional disturbance. This sentence is an example of irrational self-talk: " I should never be unkind to my wife. If I am, I know I'm a rotten person ". The words " should never " allows no possibility of flaw. When the inevitable fight occurs, you indict yourself as entirely rotten - all on the basis of a single event.

Irrational ideas may be based on outright misperception such as " I NEED LOVE "

Inaccurate self-talk such as " I need love " is emotionally dangerous as compared to the more realistic self-talk such as "I want love very much, but I know I don't absolutely need it. I can survive and be reasonably happy without it".

EXAMPLE:

A. Facts and event

A mechanic replaced a fuel pump he honestly believed was malfunctioning, but the car's performance doesn't improve. The customer is furious and demands that he put the old fuel

pump back.

B. Mechanic's Self-talk

" He's just a jerk- Nothing would please him !"

" Why the hell do I get all the tough jobs? "

" I ought to have figured this out by now anyway "

" I'm not much of a mechanic ".

C. Emotions

Anger and resentment

Depression

EXAMPLE:

A. Facts and event

You are at a party where you don't know anybody, and you haven't made any effort to talk to anybody.

B. Self-talk

" People seem to ignore me at parties ".

" It's obvious that I'm either boring or unattractive to them ".

" How terrible !"

C. Emotions

Anxiety , depression, sense of worthlessness, guilt.

How many irrational ideas do you hold? At the root of all irrational thinking is the belief that things are done to you: " That really got me down..... She makes me nervous " The fact is that nothing is done to you. Events happen, you engage in self talk, and then you experience an emotion. If your self-talk is irrational and unrealistic, you create an unpleasant emotion.

Two common forms of irrational self-talk are statements that "Awfulize" and "Absolutize". You make catastrophic, nightmarish interpretations of your experience. For example: your tire is flat when you go out to start the car in the morning. The self-talk starts.... " Why does this always happen to me? Damn, I can't take this anymore. It's awful! " Any inconvenient problem or failure to get your own way results in awfulizing self-talk, which in turn results in intense irritation and stress.

RULES TO PROMOTE RATIONAL THINKING

(From David Goodman's EMOTIONAL WELL BEING THROUGH RATIONAL BEHAVIOR TRAINING, cited in Davis et al., 1982).

1. It doesn't do anything to me. The situation doesn't make me anxious or afraid. I say things to myself that produce anxiety or fear. WE FEEL THE WAY WE THINK.

2. Everything is exactly as it should be. The conditions for things or people to be otherwise don't exist. To say things should be other than what they are is to believe in magic. They are what they are because of a long series of causal events, including interpretations, responses from irrational self-talk, etc. To say things should be different is to throw out causality.

3. All humans are fallible creatures. This fact is inescapable. If you haven't set reasonable quotas for failure for yourself and others, you increase the prospects for disappointment and unhappiness. It becomes too easy to attack yourself and others as worthless, bad, etc.

4. It takes two to have conflict. Before beginning a course of accusation and blame, consider the 30 percent rule. Any party to a conflict is contributing at least 30 percent of the fuel to keep it going.

5. The original cause is lost in antiquity. It is a waste of time to try and discover who did what first. The search for the original cause of chronic painful emotions is extremely difficult. The best strategy is to make decisions to change your behavior now.

HOW TO REFUTE IRRATIONAL IDEAS

1. Write down the facts of the event as they occurred.

(include only objective facts)

2. Write down your self-talk.

(include all your subjective value judgements, assumptions, beliefs, predictions, and worries)

3. Focus on your emotional response. (make a clear one word label.....angry, depressed, worthless, afraid)

4. Dispute and change the irrational self talk.

i) Select the irrational idea

ii) Is there any rational support for this idea?

iii) What evidence exists for the falseness of this idea?

iv) Does any evidence exist for the truth of this idea?

v) What is the worst thing that could happen to me if what I want to happen doesn't, or what I don't want to happen does?

vi) What good things might occur if what I want to happen doesn't or what I don't want to happen does?

5. Substitute alternative self- talk now that you have clearly examined the irrational idea and compared it with rational thinking.

ie. I can accept painful situations when they emerge. Facing the problem is more adaptive than resenting it or running away from it. I feel what I think. If I don't think negative thoughts, I won't feel stressful emotions. At worst I will experience

inconvenience and annoyance - not anxiety, depression, and rage.

HOMEWORK

1. Refute and analyze one episode of self talk on the homework sheet.
2. Draw in your physical symptoms on the stress logo.
3. Keep a log of daily stressors and physical symptoms associated.
4. Practice the relaxation technique you learned in class for 20 minutes per day.

HOMEWORK SHEET

Choose one event that occurs over the next week and analyze it.

Use this sheet.

A. ACTIVATING EVENT:

B. RATIONAL IDEAS:

C. IRRATIONAL IDEAS:

D. CONSEQUENCES OF IRRATIONAL IDEAS:

E. DISPUTING AND CHALLENGING THE IRRATIONAL IDEAS:

1. SELECT THE IRRATIONAL IDEA:

2. IS THERE ANY RATIONAL SUPPORT FOR THIS IDEA?

3. WHAT EVIDENCE EXISTS FOR THE FALSENESS OF THIS IDEA?

4. DOES ANY EVIDENCE EXIST FOR THE TRUTH OF THIS IDEA?

5. WHAT IS THE WORST THING THAT COULD HAPPEN TO ME?

6. WHAT GOOD THINGS MIGHT OCCUR?

F. ALTERNATIVE THOUGHTS:

G. ALTERNATIVE EMOTIONS:

BODY SCANNING

Close your eyes. Take a deep breath in. Try to focus your attention away from the outside environment to inside your body. Breath out. Keep breathing in and out very deeply and slowly. As you breath, try to relax your muscle groups one by one.

Keep breathing and count as follows:

IN 1

OUT 2

IN 3

OUT 4

IN 5

OUT 6

IN 7

OUT 8

IN 1

OUT 2 ETC.

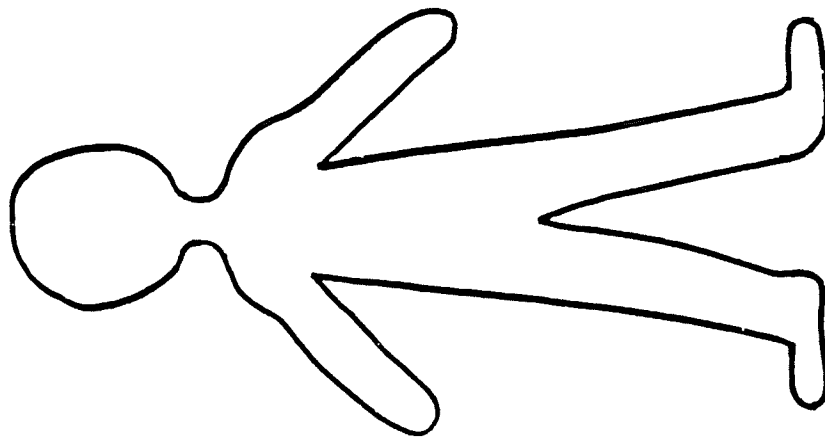
When out have completed 4 cycles of this do a survey of your body. Where do you feel stress?

Look at the logo on the next page. Draw in the tensions you feel in response to stress.

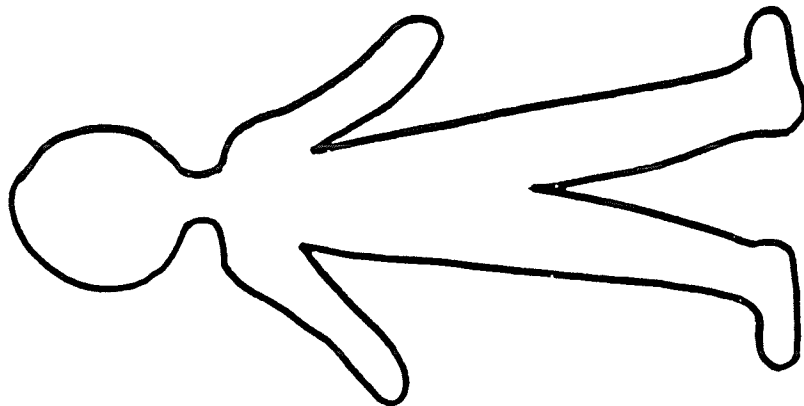
LOCA · STRESS

(Physical Stress Chart)

Name: _____
Date: _____
Additional Information _____



Front



Back

INSTRUCTIONS

- Close your eyes and take a few deep breaths.
 - Scan your body for areas of tension.
 - Shade areas that have muscle tension now.
 - Use darker shading for the areas with more tension.
 - Be as specific and detailed as possible.
- Open your eyes and draw as necessary and then close your eyes and continue to scan for areas of tension.
 - Circle areas of chronic tension (areas that often seem tense).
 - On the back of this page elaborate on the physical sensations in your body.

STRESS AWARENESS DIARY

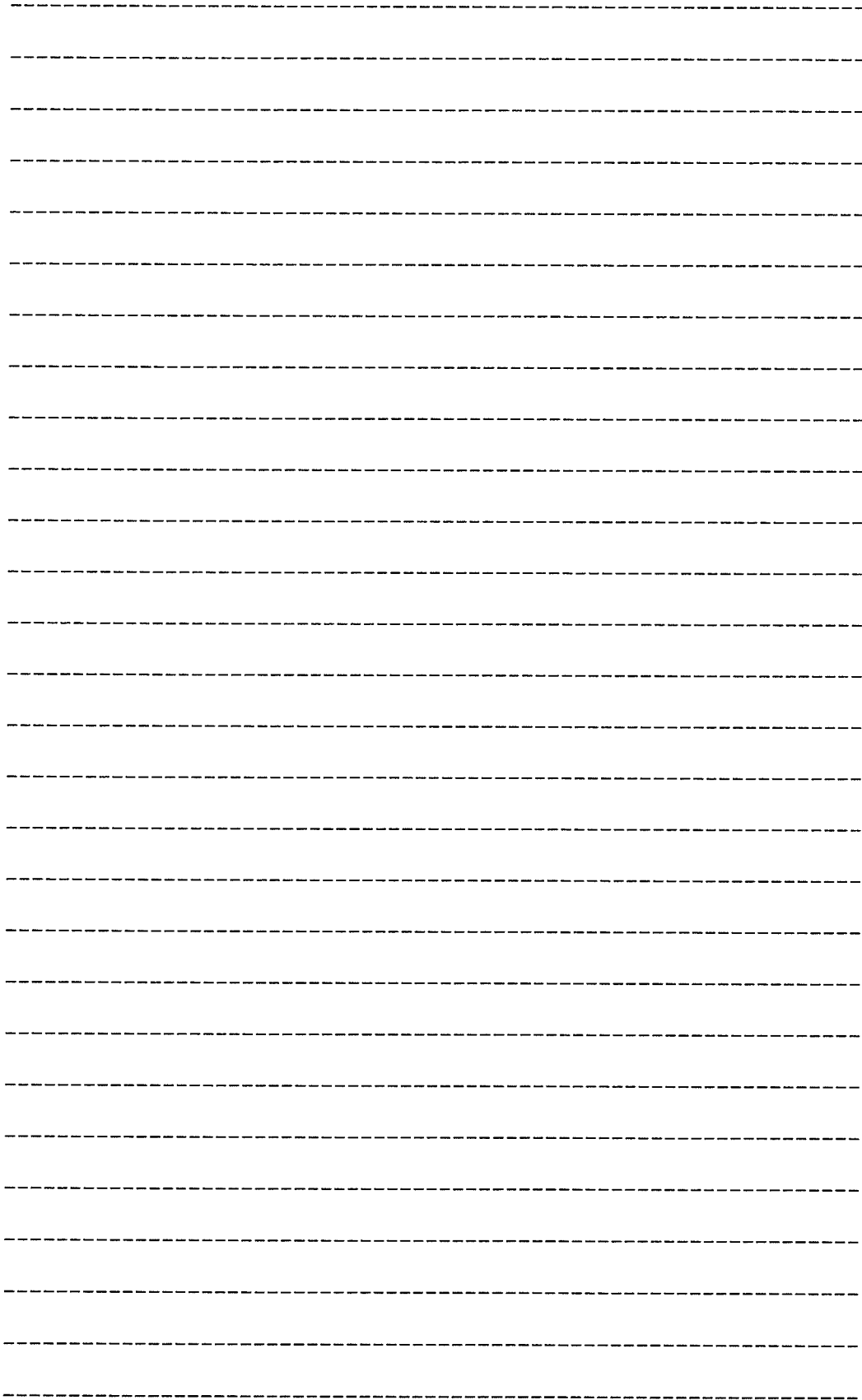
DATE: _____ DAY OF THE WEEK: _____

TIME

STRESSFUL EVENT

PHYSICAL SYMPTOM

[illegible]



SESSION 2

Today's session will include the following:

1. DISCUSS HOMEWORK ASSIGNMENTS
2. TYPE A BEHAVIOR (WHAT IT IS/ ARE YOU TYPE A?)
3. ALTERNATE WAYS TO RESPOND
4. RELAXATION EXERCISE

TYPE A BEHAVIOR

10 MINUTE FILM CLIP DEMONSTRATING TYPE A IN A HUMOROUS FASHION

DEFINITION:

Type A people are engaged in a constant struggle to maintain control over their environment. They perceive events as challenging, where others see no challenge. Type A people get the job done very well, but it is at tremendous expense to their bodies. Type A people think they must continue with this behavior in order to be effective. This is partially because our society values and promotes this type of behavior. The truth is that type A behavior is not effective. It is a maladaptive coping response. Type B people are the opposite of type A. They tend to be more placid and laid back. Type B people are just as effective in running their lives, but without the high energy cost. Can you think of any Type B people you know? You may have been practicing Type A behavior for a very long time, but you do have the ability to change your behavior.

WHY TYPE A IS INEFFECTIVE ?

TOO QUICK ON THE TRIGGER

INDISCRIMINATELY STRONG REACTION

TOO SLOW TO RECUPERATE

RESULT: YOU GET THE JOB DONE, BUT WITH A WASTEFUL
USE OF YOUR ENERGY

GOALS OF THE PROGRAM:

EFFECTIVE USE OF YOUR ENERGY:

1. LEARNING TO BE MORE SELECTIVE IN CHOOSING WHICH TRIGGERS TO RESPOND TO
2. LEARNING TO MODULATE THE DEGREE OF YOUR RESPONSE TO ANY STRESS TRIGGER
3. MINIMIZING THE DURATION OF YOUR MOBILIZATION
4. MAXIMIZING THE BENEFITS OF YOUR RECUPERATION

ARE YOU TYPE A?

Jenkins Activity Survey.

Mark in Class and Discuss.

Relaxation Exercise for 20 minutes.

Homework

1. Go into a busy store. Choose something to buy. Get into a long line up. As soon as you get to the front of the line, go to the back again. Repeat this 3 times. Observe how your

body feels. Choose an alternate reaction. For example, this might be a good time to practice a simple breathing exercise.

2. Drive behind a slow moving motorist in traffic. Repeat the above observations.

3. Continue with your log of stressors. Add in your emotional response and physical response.

4. Practice one 20 minute relaxation session per day.

LOG OF STRESSORS

TIME	EVENT	EMOTIONAL REACTION	PHYSICAL REACTION

EXAMPLE:			
8:00 A.M.	Fight with spouse	sad, crying	tight shoulder. knot in stomach
Behavior: Yelling			
9:30	Unable to reach person on telephone	annoyed	developing headache
Behavior: Talking fast, gulping, swallowing air			
12:00	Lunch	worried about my ability to complete task for which I have volunteered	tense muscles
Behavior: Gulped lunch			

SESSION 3

1. DISCUSSION OF HOMEWORK ASSIGNMENTS.
2. PLAN FOR CHANGING BEHAVIOR
3. COMMUNICATION SKILLS MOVIE- COMMUNICATING (Sterling
Productions, 1985)
4. RELAXATION EXERCISE
5. HOMEWORK

PLAN FOR CHANGING BEHAVIOR

Through your homework assignment of last week, you may have learned some ways in which you respond in a non productive manner. Here is a plan for helping you to change these behaviors.

GOAL: To improve your skill in relaxation

To learn skills for changing tense behavior

- How:
1. Choose one specific behavior as a change target
 2. Choose a specific situation in which to implement the change.
 3. Prepare strategies to change
 4. Evaluate your actions and your feelings.

PLAN:

NAME:

1. BEHAVIOR TO CHANGE:

(ie. when I get upset, I
interrupt and don't listen)

2. SPECIFIC SITUATION:

(when: tomorrow
where: at home
with : my wife

BEHAVIOR:

WHEN:

WHERE:

WITH WHOM:

3. STRATEGY

(ie. as soon as I begin to
interrupt I will make a
deliberate effort to listen
carefully)

4. RECORD OUTCOMES:

(what happened: I stopped
listening 2 times, but I was
able to pay attention once.
I feel I have made a start

WHAT HAPPENED:

HOW DO YOU FEEL?

COMMUNICATION

Stress frequently arises in our attempts to communicate with those around us. Sometimes we do not say what we mean..... sometimes those around us do not say what they mean. This problem frequently arises because the people we communicate with have their own self-talk.

For a moment consider the following facts about communication.

1. 85% of communication is non verbal
2. Verbal communication = words only
3. Non verbal communication = facial expression

body position

muscle tone

breathing tempo

voice tone

Sometimes people say one thing but communicate quite another with their body language. This it makes it very confusing to the listener. Virginia Satir (1972) thinks that people communicate in an unclear fashion when they feel badly about themselves.

The following are Virginia Satir's classification of communication:

1. PLACATER:

Words: whatever you want is O.K. with me. I am just here to make you happy

Body language: says I feel helpless

Inside: I feel like nothing

I am dead without you

I am worthless

2. BLAMER:

Words: disagree all of the time

You never do anything right

What is the matter with you

Body: blames I am the boss around here

Insides: I feel lonely and unsuccessful

3. COMPUTER:

Words: ultrareasonable

Body: computer like, calm, cool and collected

Insides: I feel vulnerable

4. DISTRACTER:

Words: irrelevant (the words make no sense)

Body: angular and off somewhere else

Insides: Nobody cares. There is no place for me.

5. LEVELLER:

Words: represent the truth at that moment in time

Body: is consistent with the verbal message

Insides: I feel good about myself and I am
expressing my needs.

Levelling is difficult at first, but it is the only way
in which we can communicate clearly with each other and
hope to have our needs met.

The following are reasons we find it difficult to level:

1. I might make a mistake
2. Someone might not like it
3. Someone will criticize me

4. I might impose
5. He/she will think I am no good
6. I might be thought of as imperfect
7. He/she might leave

Try these rebuttals:

1. You are sure to make mistakes if you take any action, especially new action.
2. You can be quite sure that there will be someone who won't like what you do. Not everyone likes the same things.
3. Yes, someone will criticize you. You really aren't perfect. Some criticism is useful.
4. You can live through whatever happens. You have more strength than you think you have.

Virginia Satir has observed:

1. 50% of people will say yes no matter what they feel.
2. 30% of people will say no no matter what they feel.
3. 15% of people will say neither yes nor no and will give no hint of their feelings. (computer)
4. 1/2 % will behave as if yes or no or feeling did not exist. (distracting).
5. 4 1/2 % of people are real and level.

HOMEWORK

1. Plan a behavior to change.
2. Observe your communication style and decide if you are saying what you mean.
3. Have one important conversation and communicate what you feel in an honest and open fashion. See what happens.
4. Continue relaxation exercises.

SESSION 4

1. Assertion vs aggression
2. Anger Management
3. Quick Relaxation

ASSERTION VS AGGRESSION

Assertiveness is defined by Wolpe (1958) and Lazarus (1966) (cited in Davis et al., 1982)

as expressing personal rights and feelings. People who show relatively little assertive behavior do not believe they have a right to their feelings, beliefs or opinions. In the deepest sense, they reject the idea that we are created equal and are to treat each other as equals.

You are assertive when you stand up for your rights in such a way that the rights of others are not violated. Assertiveness allows you to:

1. demand your rights
2. express your personal likes and interests spontaneously
3. talk about yourself without being self-conscious
4. accept compliments comfortably.
5. disagree with someone openly
6. ask for clarification
7. say no
8. express anger effectively
9. be more relaxed in interpersonal situations

THREE BASIC STYLES OF INTERPERSONAL BEHAVIOR

AGGRESSIVE: some examples of aggressive behavior are fighting accusing, threatening, and generally stepping on people without

regard for their feelings. The advantage of this type of behavior is that people do not push the aggressive person around. The disadvantage is that people do not want this type of person around them.

PASSIVE: A passive person lets other people push him or her around. The advantage of this behavior is that you rarely experience direct rejection. The disadvantage is that you are frequently taken advantage of. This causes you to store up a great deal of anger and hostility.

ASSERTIVE: People are assertive when they stand up for themselves, express their true feelings, and don't let others take advantage of them. At the same time the assertive person is considerate of others' feelings. The advantage of being assertive is that you get what you want, usually without making others angry. If you are assertive, you can act in your own best interest without feeling guilty or wrong about it. Meekness and withdrawal; attack and blame; are no longer needed. How many times have passive and aggressive styles failed to get you what you want?

THE FOLLOWING IDEAS MAY HELP YOU TO BECOME ASSERTIVE:

(DAVIS ET AL., 1982)

MISTAKEN TRADITIONAL ASSUMPTIONS

YOUR LEGITIMATE RIGHTS

1. It is selfish to put
your needs before others'

You have a right to put
yourself first, sometimes.

needs.

2. It is shameful to make mistakes. You should have an appropriate response for every occasion.

3. If you can't convince others that your feelings are reasonable, then they must be wrong, or maybe you shouldn't feel that way.

4. You should respect the views of others, especially if they are in a position of authority. Keep your differences of opinion to yourself. Listen and learn.

5. You should always try to be logical and consistent.

6. You should be flexible and adjust. Others have good reasons for their actions and it's not polite to question them.

7. You should never interrupt people. Asking questions reveals your stupidity to others.

You have a right to make mistakes.

You have a right to be the final judge of your feelings and accept them as legitimate.

You have a right to have your own opinions and convictions.

You have a right to change your mind or decide on a different course of action.

You have a right to protest unfair treatment or criticism.

You have a right to ask for clarification.

8. Things could get even worse.

Don't rock the boat.

You have a right to
negotiate for change.

9. You shouldn't take up others'
valuable time with your problems.

You have a right to ask
for help or emotional
support.

10. People don't want to hear
that you feel bad, so keep it
to yourself.

You have a right to feel
and express pain.

11. When someone takes the time
to give you advice, you should
take it very seriously. They are
often right.

You have a right to
ignore the advice of
others.

12. Knowing that you did something
well is its own reward. People don't
like show-offs. Successful people are
secretly disliked and envied. Be
modest when complimented.

You have a right to
receive formal
recognition for your
work and achievements.

13. You should always try to
accommodate others. If you don't
they won't be there when you
need them.

You have a right to
say "NO".

14. Don't be antisocial. People
are going to think you don't
like them if you say you'd
rather be alone.

You have a right to be
alone, even if others
would prefer your
company.

15. You should always have a good reason for what you feel and do.

You have a right not to justify yourself to others.

16. When someone is in trouble you should help them.

You have a right not to take responsibility for someone else's problem.

17. You should be sensitive to the needs and wishes of others even when they are unable to tell you what they want.

You have a right not to have to anticipate others' needs and wishes

18. It's always a good policy to stay on people's good side.

You have a right not to always worry about the goodwill of others.

19. It's not nice to put people off. If questioned, give an answer.

You have a right not to respond to a situation.

How to be assertive:

1. Identify those situations in which you want to be more effective.
2. Look at your rights, what you want, what you need, and your feelings about the situation. Let go of blame, the

desire to hurt, and self pity. Define your goal and keep it in mind when you negotiate a change.

3. Arrange a time to discuss your problem that is convenient for you and the other person. This step may be omitted when dealing with spontaneous situations.

4. Define the problem as specifically as possible.

5. Describe your feelings using "I" messages. An "I" message expresses your feelings without evaluating or blaming others.

example: You hurt me!

"I" message: I feel hurt.

6. Express your request in easy to understand sentences.

Be specific and firm.

7. Reinforce your request by stating the positive consequences of your request.

8. Maintain direct eye contact.

9. Maintain an erect body posture.

10. Speak clearly, audibly, and firmly.

11. Don't whine or have an apologetic tone to your voice.

12. Make use of gestures and facial expressions for emphasis.

HOW YOU INTERACT WITH OTHERS CAN BE A SOURCE OF CONSIDERABLE STRESS.

HOW WOULD YOU RESPOND TO THE FOLLOWING SITUATIONS.

1. You buy something at the store, and after you walk out,

you discover your change is \$5 dollars short.

I would: _____

2. You order a steak rare and it arrives medium-well.

I would: _____

3. You are giving a friend a lift to a meeting. The friend keeps puttering around for half an hour so that you will arrive late.

I would: _____

4. You are relaxing with the paper after a long day. Your spouse runs in and says: " I thought you would never get here, quick go and pick these things up for me."

I would: _____

5. While you wait for the clerk to finish with the customer ahead of you, another customer comes in and pushes ahead of you.

I would: _____

ANGER.....

What do you do with anger? Is it O.K. to feel anger? Do you hide anger?

ANGER is a feeling like any other feeling. It is O.K. to feel anger. What is important is that you know how to deal with it once you feel it. People express anger in the same ways as they deal with all interpersonal situations. Passive people might try to deny they feel it. Aggressive people might take their anger out on others by shouting or hitting. Assertive people express their anger and deal with it effectively.

Imagine a situation in which you were very angry. What did you do? What might you try to do next time?

VIRGINIA SATIR'S

THE FIVE FREEDOMS

THE FREEDOM TO SEE AND HEAR WHAT IS HERE INSTEAD OF WHAT SHOULD BE, WAS, OR WILL BE.

THE FREEDOM TO SAY WHAT ONE FEELS AND THINKS, INSTEAD OF WHAT ONE SHOULD.

THE FREEDOM TO FEEL WHAT ONE FEELS, INSTEAD OF WHAT ONE OUGHT.

THE FREEDOM TO ASK FOR WHAT ONE WANTS, INSTEAD OF ALWAYS WAITING FOR PERMISSION.

THE FREEDOM TO TAKE RISKS IN ONE'S OWN BEHALF INSTEAD OF CHOOSING
TO BE ONLY SECURE AND NOT ROCKING THE BOAT.

HOMEWORK

1. Choose one situation in which you would like to be more assertive. Prepare yourself for this situation, and carry it out.
2. Communicate your anger to someone in an assertive and productive way.
3. Practice relaxation every day for the next week.

SESSION 5

1. TIME MANAGEMENT
2. QUICK RELAXATION
3. PLANNING FOR PLEASURE
4. PREPARING FOR EMERGENCIES
5. EVALUATION

TIME MANAGEMENT

WHAT IS MANAGEMENT?

Management is the wise use of resources to achieve what is wanted.

Management is using what you have to get what you want.

Management is the creation of an environment and atmosphere which allows for the planning of each day in such a way that we move closer to our goals.

To be effective this management must produce the desired results.

WHAT IS EFFICIENCY?

Efficiency is the ability to produce the effect wanted without waste of time, energy or economy.

It is trying to get everything done in the shortest time with the fewest wasted motions.

It is thinking out an activity and reducing it to a series of mechanical routines.

WHAT IS EFFECTIVENESS?

Producing the desired effect means selecting the best task to do from all the possibilities available and then doing it the best way.

STRESS PRODUCING TIME PROBLEMS

1. Everyone wants some of your time.
2. You are now in a different role which has resulted in a change in status.
3. Short-term goals conflict with long-term goals.
4. You have an approaching dead line.
5. Some things are more important (priorities).
6. You keep putting it off (procrastination).

PLANNING YOUR TIME

TIME REQUIREMENTS

1. ESTIMATE - HOW MUCH TIME SHOULD EACH ACTIVITY NEED?
2. INTERRUPTIONS - ALLOW PLENTY OF TIME FOR EACH ACTIVITY SO THAT UNEXPECTED PROBLEMS WILL NOT SPOIL THE WHOLE PLAN.
3. DOVETAIL - FIT PARTS OF EACH TASK TOGETHER. FOR EXAMPLE IF YOU HAVE 2 ERRANDS IN ONE PART OF TOWN, DO THEM BOTH AT THE SAME TIME.
4. NONESSENTIALS - OMIT UNNECESSARY ACTIVITIES AS A CONSCIOUS DECISION, RATHER THAN BECAUSE YOU RAN OUT OF TIME.

DECIDE WHAT YOU THINK ARE THE NECESSARY ACTIVITIES AND FIT THEM INTO THE TIME YOU HAVE. ANY REMAINING TIME IS YOURS.

TIME PLAN.

You probably make yourself a mental plan of what you are going to do each day. Why not take a few minutes right now to make your plans for tomorrow, and write it down.

All of the things you feel you have to accomplish tomorrow should go in the " Must Do " column. The things you feel need to be done, but are of less importance would go under " Should Do ". Under " Could Do " list some projects you want to do tomorrow.

You probably have thought of more things to do than you can fit in. While re reading your list, you may decide to change some activities from one column to another or eliminate them entirely.

Now that you have your projects in the proper column, set priorities within each column. Decide which item is most important and put an A beside it. Put a B beside those items of next importance.

At the end of the day when you are getting ready to plan your next day, check off all the items you have completed. Decide which items to include in the next day's activities.

TO DO ON _____

MUST DO

SHOULD DO

COULD DO

DO YOU HAVE DIFFICULTY GETTING YOURSELF TO DO SOMETHING?

FOR EXAMPLE DO YOU CONSTANTLY PROCRASTINATE?

PERHAPS YOU COULD TRY A TIME CONTRACT WITH YOURSELF.

TIME MANAGEMENT

I, _____

DO HEREBY CONTRACT WITH MYSELF TO, ACHIEVE THE FOLLOWING
GOAL, WHICH I HAVE SET FOR MYSELF, BY THE FOLLOWING DATE

THE GOAL I HAVE SET FOR MYSELF IS:

DATED:

SIGNED:

QUICK RELAXATION

TAKE A DEEP BREATH. CONSCIOUSLY CLEAR YOUR MIND. START AT YOUR TOES. VISUALIZE THAT YOUR TOES ARE VERY HEAVY AND THIS FEELING IS SLOWLY MOVING UP YOUR BODY. AS YOU VISUALIZE THE HEAVY RELAXATION MOVING UP YOUR BODY, KEEP BREATHING SLOW DEEP BREATHS. IF THOUGHTS ENTER YOUR MIND, GENTLY PUSH THE THOUGHTS OUT OF YOUR MIND AND CONCENTRATE VERY HARD ON FEELING THE DEEP SLOW RELAXATION MOVING UP YOUR LEGS, YOUR PELVIS, YOUR CHEST AND BACK, YOUR SHOULDERS, YOUR NECK, AND FINALLY OUT OF THE TOP OF YOUR HEAD.

THE TOTAL EXERCISE SHOULD TAKE ABOUT 5 MINUTES.

PRACTICE THIS DURING THE DAY, WHEN YOU FEEL TENSE.

WISH LIST

WHAT WOULD YOU REALLY LIKE TO DO ?

WHAT GIVES YOU PLEASURE ?

MAKE A LIST OF PLEASURES NO MATTER HOW WILD THEY ARE.

This image shows a full page of white paper with horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

RETURN TO YOUR LIST.

EVALUATE YOUR WISHES INTO REALITY AND FANTASY.

MAKE PLANS TO ATTAIN ONE OF THE WISHES.

PLAN:

WISH:

HOW TO ATTAIN:

TIME FRAME:

STEP 1:

STEP 2:

STEP 3:

EMERGENCY STRESS SITUATIONS

HOW TO PREPARE FOR:

Now that you have learned a new way to respond to old situations, you must prepare for the possibility of a relapse. Remember, it takes time to make a new habit part of you. It is important to anticipate and prevent a relapse, and to help yourself recover from a slip before it becomes a full blown relapse. Think back to your stress diary and physical reaction to stress. When you start seeing these signals again, it is time to take a look at your life.

1. TRY TO ANTICIPATE AND PREPARE FOR CRISES (IE. PREDICTABLE JOB STRESS, TIME PRESSURE)
2. TRY TO THINK AHEAD ABOUT WHAT YOU MIGHT DO IN THE MIDST OF A CRISIS. (IE. TAKE A BREAK AND EXAMINE YOUR RESPONSE, OR DO A 5 MINUTE RELAXATION)
3. REMEMBER IF YOU MAKE A SLIP, ALL IS NOT LOST. FORGIVE YOURSELF AND TRY AGAIN NEXT TIME.

I AM ME

- VIRGINIA SATIR (1975)

IN ALL THE WORLD, THERE IS NO ONE ELSE
EXACTLY LIKE ME.

THERE ARE PERSONS WHO HAVE SOME PARTS
LIKE ME,
BUT NO ONE ADDS UP EXACTLY LIKE ME,
THEREFORE, EVERYTHING THAT COMES OUT OF
ME IS AUTHENTICALLY MINE BECAUSE I ALONE
CHOSE IT.

I OWN EVERYTHING ABOUT ME - MY BODY,
INCLUDING EVERYTHING IT DOES;
MY MIND, INCLUDING ALL ITS THOUGHTS AND
IDEAS;
MY EYES, INCLUDING THE IMAGES OF ALL THEY
BEHOLD:
MY FEELINGS, WHATEVER THEY MAY BE -
ANGER , JOY, FRUSTRATION, LOVE, DISAPPOINTMENT,
EXCITEMENT;
MY MOUTH, AND ALL THE WORDS THAT COME
OUT OF IT, POLITE, SWEET OR ROUGH, CORRECT
OR INCORRECT;
MY VOICE, LOUD OR SOFT;
AND ALL MY ACTIONS, WHETHER THEY BE TO
OTHERS OR TO MYSELF.

I OWN MY FANTASIES, MY DREAMS, MY
HOPES, MY FEARS.

I OWN ALL MY TRIUMPHS AND SUCCESSES, ALL
MY FAILURES AND MISTAKES.

BECAUSE I OWN ALL OF ME, I CAN BECOME
INTIMATELY ACQUAINTED WITH ME.
BY DOING SO I CAN LOVE ME AND BE
FRIENDLY WITH ME IN ALL MY PARTS.

I CAN THEN MAKE IT POSSIBLE FOR ALL OF ME
TO WORK IN MY BEST INTERESTS.

I KNOW THERE ARE ASPECTS ABOUT MYSELF
THAT PUZZLE ME, AND OTHER ASPECTS THAT I
DO NOT KNOW.

BUT AS LONG AS I AM FRIENDLY AND LOVING
TO MYSELF, I CAN COURAGEOUSLY AND
HOPEFULLY LOOK FOR THE SOLUTIONS TO
THE PUZZLES AND FOR WAYS TO FIND OUT MORE
ABOUT ME.

HOWEVER I LOOK AND SOUND, WHATEVER I
SAY AND DO, AND WHATEVER I THINK AND
FEEL AT A GIVEN MOMENT IN TIME IS ME.
THIS IS AUTHENTIC AND REPRESENTS WHERE I AM
AT THAT MOMENT IN TIME.

WHEN I REVIEW LATER HOW I LOOKED
AND SOUNDED, WHAT I SAID AND DID, AND HOW I
THOUGHT AND FELT, SOME PARTS MAY TURN
OUT TO BE UNFITTING.

I CAN DISCARD THAT WHICH IS UNFITTING, AND
KEEP THAT WHICH PROVED FITTING, AND

INVENT SOMETHING NEW FOR THAT WHICH I
DISCARDED.

I CAN SEE, HEAR, FEEL, THINK, SAY, AND DO.

I HAVE THE TOOLS TO SURVIVE TO BE CLOSE
TO OTHERS, TO BE PRODUCTIVE, AND TO MAKE SENSE
AND ORDER OUT OF THE WORLD OF
PEOPLE AND THINGS OUTSIDE OF ME.

I OWN ME,

AND THEREFORE I CAN ENGINEER ME.

I AM ME

AND I AM OKAY.

APPENDIX 5

CALCULATION

NOR-EPINEPHRINE:

$$\text{NE} = \frac{\text{SAMPLE} \times 10 \times \text{MW } 338 \times 100}{\text{STANDARD} \quad 75} = \text{NE pg/ml}$$

EPINEPHRINE:

$$\text{E} = \frac{\text{SAMPLE} \times 10 \times \text{MW } 366 \times 100}{\text{STANDARD} \quad 70} = \text{E pg/ml}$$

DOPAMINE:

$$\text{D} = \frac{\text{SAMPLE} \times 10 \times \text{MW } 306 \times 100}{\text{STANDARD} \quad 75} = \text{D pg/ml}$$

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Ms. L. Turner

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Yours sincerely,

Dorothy Smyk
Manager

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