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THE EFFECT OF COUNSELLING AND ENJOYMENT ON EXERCISE ADHERENCE

by

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The undersigned certify that they have read and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled The Effect of Counse"ing and Enjoyment on Exercise Adherence submitted by Elaine L. Jagielski in partial fulfillment of the requirements for the degree of Master of Arts in Physical Education and Sport Studies.

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Dedication

I would like to thank my mother for her never ending love, support and guidance.

Abstract

The objective of this study was to investigate the effectiveness of an exercise adherence counselling program (Wankel, 1988) based on Janis' (1983) guidelines to short-term counselling. The participants (n=9) received counselling treatment at a predetermined time period according to the within subjects multiple-baseline design. Assessments were based on pre- and post-study questionnaires, fitness appraisals and physical activity logbooks. Based on the evaluation of these and the counselling sessions, most areas of the program were found to be helpful in assisting the individuals with their exercise programs. However, certain personality variables (e.g. self-motivation, coping strategies) and situational variables (e.g. type of activity chosen) as well as enjoyment of the physical activity need further consideration so as to determine their influence.

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Chapter 1 Introduction

There is considerable evidence to suggest that physical and mental benefits may be derived from regular physical activity (Bouchard, Shephard, Stephens, Sutton, & McPherson, 1990). Physical benefits attributed to involvement in regular physical activity include improvements of: cardiovascular fitness, muscular strength and endurance, weight control, flexibility, and bone density (Paffenberger & Hyde, 1988; Powell, 1988). Psychological benefits associated with physical activity include decreased anxiety, reduced depression, enhanced self-esteem, and improved well-being (Brown, 1990; Wankel & Berger, 1990).

There is a growing public awareness about the benefits of physical activity. The importance of a physically active lifestyle has been depicted in advertisements, feature articles, magazines and documentaries. However, this increase in attention by the media has not resulted in the anticipated adoption of more physically active lifestyles (Stephens & Craig, 1990). Information in itself may be insufficient to trigger behaviour change (Knapp, 1988).

Beyond the difficulty of convincing sedentary individuals to begin an activity program there is a problem in keeping individuals active after they do initiate an activity program. Approximately half of the individuals enrolled in exercise programs drop out prior to their completion (Dishman, 1988; Oldridge, 1982). Evidence indicates that the largest dropout percentage occurs during the first 12 weeks of an exercise program (Pollock, 1988) Powell, Spain, Christenson, and Mollenkamp (1986) estimated that only 10-20 percent of the 18 to 65 year old population participated regularly enough in adequate activity to improve their physical fitness. Therefore, exercise scientists have sought to identify factors relevant to assisting individuals to begin and to maintain

regular physical exercise.

Wankel (1985) suggested that one of the most important factors distinguishing between employees who persisted in an activity program and those who dropped out was their perception of the recreational quality associated with the activity experience. He reported that individuals who experienced an exercise class as fun, who found the activity exciting, or relaxing, and who experienced positive social interactions in the program were more likely to continue being active. Dumazedier (1974) described the importance of satisfaction to involvement in leisure activities. "The search for a state of satisfaction is the prime condition of leisure... When this state of satisfaction ends or deteriorates. the individual tends to discontinue the corresponding activity" (pp. 74-75). Ferris (1985) indicates that if involvement in a structured exercise program is to be long-term, then, the program must be fun, satisfying and enjoyable.

Wankel (1988) developed an adherence counselling intervention based on Janis' (1983) guidelines for short-term counselling. This program differs from many other exercise interventions in that it is based on a coherent theoretical approach, French's (1959) theory of social power. The multi-component intervention is designed to both facilitate initial change in exercise behavior and to maintain long-term involvement in increased activity. Two tests of the original counselling intervention program revealed that the program held considerable promise for facilitating exercise adherence but that modifications would need to be made to increase its effectiveness.

The current study involved a within subjects multiple baseline design which gave a descriptive look at the subject's exercise participation over time. It also involved a qualitative aspect due to exploring the subject's reactions to the program.

1.1 Statement of the problem

The purpose of this research was to investigate the effectiveness of an exercise adherence counselling program (Wankel, 1988) based on Janis' (1983) guidelines to short-term counselling.

1.2 Research hypotheses

It is hypothesized that:

(a) the onset of the counselling program would result in increased levels of physical activity,

(b) participation in the counselling program would result in increased adherence to the chosen program, and

(c) those individuals who enjoyed the program of activities that they had chosen would have better adherence rates than those who did not enjoy what they had chosen.

1.3 Definitions

Activity questionnaire. The self-report instrument, consisting of open-ended and Likert type questions, was designed to retrospectively assess an individual's exercise prior to the beginning of the baseline monitoring period.

Baseline monitoring. The self-report recording of activity levels during the period of time prior to the treatment intervention. See Appendix C.

Post-Study questionnaire. The questionnaire administered following the completion of the study.

Fitness tests. The Standardized Test of Fitness Appraisal was administered near the

beginning and at the end of the study to assess participants' physical fitness levels.

Physical activity. Action deliberately initiated for the purpose of improving or maintaining one's personal level of physical fitness.

Physical activity intensity. Subject's self perception of their level of involvement which they rated according to the following descriptors:

light - slight changes in breathing

medium - some perspiring and above normal breathing,

heavy - heavy perspiring and heavy breathing.

Physical activity involvement. The following three components comprised the construct:

a) frequency of exercising - the number of exercise sessions per week.

b) weekly duration of exercising - the accumulated number of minutes of exercise per week.

c) intensity of exercising - based on physical activity intensity descriptors and duration.

Physical activity logbook. Instrument used to assess daily the type of each activity participated in as well as the duration, intensity and frequency for each activity.

Post test for lifestyle changes. Questionnaire administered following the study regarding lifestyle changes.

Pretest for fitness adherence. Questionnaire used to assess subjects' initial motivation to initiate and sustain regular exercise behavior.

Short-term counselling. Janis (1983) suggests that three sessions would comprise short-term counselling.

Treatment intervention. The number of weeks during which the counselling sessions

took place.

1.4 Need for the study

The research is of theoretical importance in extending existing knowledge about the appropriateness of Janis' counselling guidelines to another field of health behavior - physical activity involvement. The framework has been utilized by Wankel (1988) who has provided guidelines for sequentially incorporating a number of treatment components into an overall package designated to initially bring about a desired change and then later to sustain the desired change that has been attained. This intervention extends previous work by placing greater emphasis on the importance of enjoyment to exercise adherence. Participants were counselled on the importance of selecting activities that they enjoyed and on how they might build enjoyment into their exercise sessions.

On a practical level, this adherence counselling program is designed for general use by exercise counsellors/fitness leaders who after a short training program, could employ its strategy in a wide spectrum of exercise settings. This would then help enable individuals to accomplish their physical fitness goals. Thus, this study will help determine if and how the application of short-term exercise adherence counselling in an exercise setting can be instrumental to behavior modification. In addition, the study might provide insight into the importance of fun/enjoyment to continued physical activity involvement and how counselling might help individuals to build "fun" into their activity programs.

1.5 Limitations

Problems in determining the effectiveness of short-term counselling may occur due to the inability to control for extraneous variables such as workload, schedule changes and health factors. These conditions may influence the individuals' decisions to become more physically active.

Self-reports may be subject to unknown biases of the respondents. Also, different amounts of information were gathered at the counselling sessions due to individual differences in their willingness to share information.

In addition, the long-term effects are unknown as there were no follow-up studies to determine the subjects' adherence or activity levels after the 18 weeks of the study. Even the subjects who had 12 weeks of post-treatment monitoring cannot be included in the long-term category because they still had to submit the self-monitoring log sheets, which therefore meant that the researcher was still involved.

1.6 Delimitations

The sample was delimited to individuals having the responsibilities of a faculty member at the post secondary education level and who were willing to take the initiative of volunteering/participating in an exercise adherence counselling program. In addition, the sample was delimited to relatively inactive volunteers. Thus the results obtained may not be generalized beyond this segment of the population.

Chapter 2 Review of Literature

2.1 Physical and Psychological Benefits of Physical Activity

Physical fitness is a construct which encompasses a number of aspects such as strength, endurance, speed, and flexibility (Deobil, 1989). Traditionally, physical fitness has been defined as the ability to carry out daily tasks with vigour and alertness, without undue fatigue, and with ample energy to enjoy leisure-time pursuits and to meet unforeseen emergencies (Canadian Standardized Test of Fitness, 1987).

There are many physiological changes which occur in response to physical exercise. These changes include: an increase in caloric expenditure; an increase in fat mobilization; an increase in fat metabolism; a decrease in blood lipids (specifically the low density lipoproteins); a decrease in the resting heart rate; and a decrease in blood pressure (Fox, Bowers & Foss, 1989). To realize these changes, however, a minimal level of exercise intensity and duration must be maintained.

There are also a number of psychological benefits which may be derived from physical activity. Relief from stress is one such potential benefit. Stress is a pervasive problem in our modern society. The experience of stress is usually described in ways associated with one's emotions such as anxiety (Cox, 1978). Participation in physical activity can be a useful coping strategy for reducing anxiety (Long, 1984; Sime, 1984).

Berger, Friedmann and Eaton (1988) reported that college students who were randomly assigned to a stress reduction activity, whether it was jogging, Benson's relaxation response, or group interaction, reported short-term decreases in psychological stress. Students in the control group did not experience this decrease. These findings are similar to those reported in other studies in which individuals selected their activities rather than being assigned to them (Berger, 1984; Carrington, 1984; Morgan & Goldston,

1987).

Long and Haney (1988) studied the long-term effects of stress interventions. Thirty-nine stressed, sedentary working women (assessed through a number of criteria such as Walk's (1956) Tension Thermometer, exercising less than three times per week, and identifying two persistent work-related stressors) were randomly assigned to aerobic exercise (jogging) or progressive relaxation interventions for an eight week period. At a 14-month follow-up evaluation, both intervention groups reported significantly less anxiety and greater self-efficacy than prior to the interventions. The proportion of subjects in the exercise group reaching clinically significant improvements was 24% at the end of treatment and 33% at the 14-month follow-up.

Habitual exercise has been found to be effective in reducing autonomic responses to stress states (Sime, 1977; Blumenthal, 1980). Subhan, White and Kane (1987) found this to be evident when they investigated the effect of physical conditioning on stress states, using both psychological (Speilberger's state and trait anxiety inventories, the neuroticism scale of the Eysenck personality questionnaire and the second order factors relating to anxiety from Cattell's 16 PF questionnaire) and physiological (heart rate, blood pressure, ventilation volume and breath frequency) measures. Thirteen members of the local community embarked on a 10-week aerobic conditioning program and nine members comprised a control group. The researchers reported a significant influence of physical conditioning on reactions to the Hines and Brown cold induced stressor test.

2.2 Dose Response Requirements for Health Benefits

Morgan and Goldston (1987) suggested that in order to achieve cardiovascular improvement, an exercise session should be at least 20 minutes in duration, 3 to 5 days

per week, and at an intensity of 60 to 80% of the maximum heart rate. Twenty minutes per exercise session is the recommended minimum, while sessions greater than 40 minutes do not result in a significant additional increase in training effect (Birrer, 1989). These are also the guidelines of the American College of Sports Medicine (1978) for developing and maintaining cardio-respiratory fitness in the healthy adult. Using these same guidelines only 11% of Canadians qualify as active according to the Campbell's Survey of Well-Being (Stephens & Craig, 1990). However, exercise at a lower intensity has also been shown to be beneficial (King, Taylor, Haskell, & DeBusk, 1988). When total energy expenditure was considered as the criterion, one third of Canadians were classified as active in the Campbell's Survey of Well-Being (Stephens & Craig, 1990).

Thus, regardless of which criterion is adopted, a large segment of the population is not sufficiently active to realize these benefits.

2.3 Patterns of Activity Involvement and Exercise Attrition

Compliance/adherence has been defined by Sackett as "the extent to which a person's behavior (in terms of taking medications, following diets, or executing lifestyle changes) coincides with medical or health advice" (in Oldridge, 1988, p.76). Adherence is generally used in the context of voluntary behavior prompted either by a personal decision or by advice from some other person or persons. Compliance is more commonly used in the context of medical management, when a specific behavior is prescribed, such as aerobic exercise for cardiac rehabilitation patients (Oldridge, 1984). Nonetheless, either adherence or compliance (which depends on the specific area in which an intervention operates such as weight control, drug addiction, exercise programs) is a prerequisite in determining the effect of the treatment. Adherence rates tend to be

dismal for preventive health care behaviours (Dishman, 1989). Less than 60% of individuals entering a health-related preventive treatment adhere to the regimen, and fewer than 50% comply with recommendations focusing on more complex lifestyle changes (Hays & DiMatteo, 1987).

The adherence rate for exercise adherence follows a positively accelerating function across time (Dishman, Ickes & Morgan, 1980). Most data show that the largest percent dropout in an exercise program occurs during the first 12 weeks (Pollock, 1988). The drop out rate for exercise regimens has been shown to average from 50 to 80% for the first 5 to 6 months of a program (Dishman, Sallis, & Ornstein, 1985; Oldridge, 1984). These rates continue despite the widespread recognition of potential health benefits of exercise and the fact that roughly 85% of exercise participants report that they "feel better" when exercising (Morgan, 1981). Long-term programs report that after one year less than 50% of the original participants remain active and the rate is significantly less thereafter (Dishman et al., 1985; Ward & Morgan, 1984).

2.3.1 Enjoyment of Exercise

One of the relatively unexplored factors which affects exercise adherence is the extent to which an individual enjoys doing the physical activity involved in his or her exercise program. Several researchers have suggested that feelings of enjoyment may play an important role in exercise adherence (Dishman et al., 1985; Heinzelmann & Bagley, 1970; Martin & Dubbert, 1982; Wankel, 1985). According to Payne (1981, p.4), there seems to be a crucial factor which keeps some people going. Very simply, they continue because they enjoy what they are doing. The motivation to be fit and the good feelings that comes with being fit are important, however, if an individual finds the

activity enjoyable, then the benefits of exercise are all bonuses. If involvement is to be long-term, then, the program must be "fun", satisfying and/or enjoyable (Ferris, 1985). It has been reported that the physical conditioning programs which are most successful are those that are pleasurable and offer the greatest variety (Massie & Shephard, 1971).

An activity may be regarded as a stressor unless there is a sense of intrinsic motivation and enjoyment (Deci & Ryan, 1987). King et al., (1988) found that convenience and enjoyment of exercise significantly influenced both the adoption and maintenance of exercise. Thus, the authors recommended that programs be developed with these factors in mind rather than just performance outcomes, such as improving cardiovascular response efficiency, strength, and/or flexibility.

It has been observed that adherence rates for lower intensity leisure activities such as walking tend to be higher than those for higher intensity exercises such as aerobic classes or jogging (Kriska, Bayles, Cauley, LaPorte, Black, Sandler & Pambianco, 1986; Siegel, Johnson & Newhof, 1988; Wankel, 1988). This might indicate that for many participants lower intensity activities have more of a recreational quality.

A study investigating the adherence of 186 college women to exercise classes found that the recreational value of participation was not only relaxing and enjoyable, but of great importance to the individual in that it was socially rewarding (Siegel, Johnson & Newhof, 1988). A discriminant function analysis was used to determine differences between those who had completed the program and those who did not. Sixty-three percent of the variance between the groups was accounted for with the "recreation" factor being the most potent discriminator. Fun loaded highest in this factor, with excitement also included. Wankel (1985) conducted a study involving male employees of a large manufacturing firm who ran or jogged on a three-times-per-week basis. It was

found that continuing participants scored higher than dropouts on the goals to develop recreational skills. The participants who completed the program also reported the program to be a more positive social experience and to be more conducive to developing and utilizing physical skills than did the dropouts.

2.4 Interventions to Enhance Exercise Adherence

Various intervention strategies have been utilized in an attempt to improve exercise adherence. These include: self-monitoring, reinforcement, establishing a social support system, using low intensity activities, goal setting, completing a decision balance-sheet, perceived choice enhancement, and relapse prevention training (Belisle, Roskies & Levesque, 1987; Daltroy & Godin, 1989; Hoyt & Janis, 1975; Levy, 1986; Martin, 1984; Noland, 1989; Oldridge, 1988a; Thompson & Wankel, 1980; Wankel, 1985, 1988b). Although all of these techniques have been shown to facilitate adherence to varying degrees, none have been shown to be vastly superior so as to be effective for all subjects. In the following review attention will be given to those techniques which have been included in the counselling intervention to be employed in this study.

2.4.1 Self-monitoring

Self-monitoring involves individuals systematically recording the occurrence of a specified target behavior such as adherence to an exercise regimen. Generally these records are submitted to an independent observer on a regular, daily or weekly basis. Self-monitoring is frequently described as a reactive measure. That is, in addition to being a data collection procedure for obtaining a record of physical activity involvement, the act of monitoring itself frequently results in a "treatment effect". Studies in a variety

of areas (e.g., weight-control, smoking cessation) suggest that by having people increase attention to their own behavior, they will also try to make their behavior match their goals (Kirschenbaum & Wittrock, 1984). Self-monitoring has been used in studies focusing on self-initiated exercise (Juneau, Rogers, DeSantos, Yee, Evans, Bohn, Haskell, Taylor & Debusk, 1987; King, Taylor, Haskell, & DeBusk, 1988; Wankel, 1988a).

Noland (1989) reported that the effectiveness of behavioral intervention which included self-monitoring, differed for novice and regular exercisers. For sedentary individuals attempting to initiate an unsupervised exercise program it appeared to promote adherence, whereas, it appeared to have little effect on the activity involvement of fairly regular exercisers (those who had just completed an adult fitness program).

Self-monitoring has been used effectively during the maintenance phase of a home-based exercise program to promote adherence (King et al., 1988). The researchers investigated the adoption and maintenance of home-based exercise in middle-aged adults. Self-monitoring was the principal contributor for maintaining adherence.

2.4.2 Social support

The process of perceiving and receiving social support varies over time and among individuals (Bruhn, & Philips, 1984). Social support appears to be an important determinant of success in changing exercise behavior (Levy, 1986; Daltroy & Godin, 1989; Sallis, Grossman, Pinski, Patterson, & Nader, 1987; Wankel, Yardley & Graham, 1985). The value of developing social support measures targeted for specific purposes has been supported by Sallis et al. (1987).

Wankel and associates (1985) investigated a structured social support intervention in an exercise program. They found that support from both the class

participants and the instructors resulted in an improvement in program attendance. Martin, Dubbert, Katell, Thompson, Raczynski, Lake, Smith and Webster (1984) also found that the social network (that is, social support in the form of an assistant who arranged to meet with a majority of her group members regularly for exercise sessions outside of class and during the follow-up period) designed in their study appeared to exert a powerful influence on the exercise adherence of the group members. Weber and Wertheim (1989) found that the groups receiving staff support attended the fitness facility significantly more than did a control group. A number of studies dealing with post-coronary infarction patients have shown that spousal support is an important factor for adherence to lifestyle changes (Andrew, Oldridge, Parke, Cunningham, Rechnitzer, Jones, Buck, Kavanagh, Shepherd, Sutton, & McDonald, 1981; Andrew & Parker, 1979; Oldridge, 1984). As well, the support of family and friends is one of the most important factors encouraging exercise involvement as shown by population survey studies (Canada Fitness Survey, 1983; Fitness Ontario, 1981; Stephens & Craig, 1990).

2.4.3 Relapse prevention

Relapse prevention has been studied in an attempt to facilitate long-term maintenance of a desirable lifestyle change. Relapse prevention begins with educating the individual regarding the process of relapse and enlisting the individual's active cooperation and participation in its prevention (Dishman, 1988). Marlatt and Gordon (1985) developed a relapse-prevention model that directly addresses the problem of long-term maintenance of new health behaviours. Belisle, Roskies, and Levesque (1987) applied this model to several groups enrolled in a ten-week exercise program. The fitness instructors were responsible for providing information to the participants in an

attempt to prevent their relapse to inactivity. After completion of the program the participants were monitored for an additional twelve weeks. Individuals exposed to the relapse-prevention training showed only small differences when compared to those in the control group. On the positive side, however, Belisle and associates did demonstrate how one simple, easily applicable intervention produced a small improvement in adherence at a very small cost. This cost-benefit ratio contributed to their positive evaluation of relapse prevention as a viable means for enhancing exercise maintenance.

2.4.4 Multimodal interventions

King, Taylor, Haskell, and DeBusk (1988) studied the effect of a multimodal intervention for increasing early adherence to, and long-term maintenance of, exercise over a six-month period. The behavioral strategies for enhancing the adoption of exercise included goal-setting, self-monitoring, instruction in relapse prevention and supportive feedback provided by telephone contact with staff. By using self-directed monitoring and relapse prevention training the gains which were achieved during the first six months were maintained over the second six months. Convenience and enjoyment of exercise were found to significantly influence both the adoption and maintenance of exercise. In addition, the lower intensity of exercise provided for in the study contributed to the comfort of exercise, especially among the middle-aged individuals.

Martin et al. (1984) studied the effect of a multimodal intervention on exercise adherence through a series of six studies. The procedures used included feedback and praise during exercise, various goal-setting strategies, lottery reinforcement (a small jogging apparel item was awarded each week to one subject in the group), cognitive strategies during the exercise, and relapse prevention training. The results indicated that

social support, feedback and praise during exercise; flexibility in exercise goal setting, and distraction-based cognitive strategies were useful interventions for facilitating exercise adherence.

Perri, McAllister, Gange, Jordan, McAdoo, and Nezu, (1988) evaluated the effectiveness of five treatment programs for enhancing the long-term maintenance of weight loss. Even though this study did not deal with exercise adherence it did support the effectiveness of a multi-modal intervention as the results indicated that all four conditions that combined behavior therapy with a post-treatment maintenance program sustained significantly greater long-term weight losses than did just a behavior-therapy condition alone. Based on their findings the authors suggested that a multifaceted approach may improve the long-term management of obesity.

Instead of looking for one treatment for all situations, it may be more profitable to use a number of interventions which are low in cost and evaluate each one in terms of its cost-benefit ratio (Belisle et al., 1987). Therefore, the problem becomes one of combining a variety of interventions that will result in maximum improvements in exercise adherence but result in a minimum of cost.

2.5 Counselling

Counselling is concerned with decision-making skills and problem resolution. The counsellor "aids in decision-making, in expanding his/her client's range of alternatives or options open to him/her, in modifying behavior patterns in desired directions" (Wrenn, 1970). Without the development of decision-making tools, the client will be dependent upon the counsellor indefinitely (Pietrofesa, Splete, Hoffman & Pinto, 1978). The counsellor must assist the client to make the desired changes but at the same time must

foster independence in the client so that he/she is able to maintain the change, or to make further changes on his/her own. To effectively assist the client in the behavior change process it is important for the counsellor to establish one of a number of bases of social influence. These social influences include coercive power, reward power, legitimate power, expert power, and referent power.

2.5.1 Janis' short-term counselling guidelines

There is considerable evidence to indicate that using referent power is a very effective means of influencing sustained behavior change (French & Raven, 1959; Tedeschi & Lindskold, 1976; Podsakoff & Schriesheim, 1985). Referent power is based on the individual, who is undergoing change, identifying with the influencing individual. To become a reference person the counsellor/helper must establish a relationship with his/her client in which he/she is perceived as a "significant other". According to Janis, being a person with referent power implies that the individual is perceived as "useful and likable but also as benevolent, admirable and accepting" (1983, p. 19). Most importantly, the person with referent power is seen as providing a reliable source of positive self-esteem for the client, that is, the counsellor can be trusted to treat the individual in such a manner that allows the person to feel good about himself/herself. In utilizing appropriate skills that result in the "client" being motivated to make the desired behavior changes, the counsellor can assist the individual to enhance his/her self-esteem.

In contrast to referent power, coercive, reward, legitimate and expert power (the other major types of social power) are more apt to induce submission rather than sustained change or internalization (French & Raven, 1959). Referent power is more likely to produce continuous behavior change because of internalization of appropriate

behavior patterns. Tedeschi and Lindskold (1976) indicate that an individual with referent power is able to induce genuine internalized changes in attitude, values and decisions.

Janis (1983) outlines procedures by which a "helper" individual (e.g., an exercise counsellor/leader) can develop referent power as a basis for becoming an effective facilitator of desired behavior change, for example, assisting individuals to succeed in their attempts to become regularly involved in physical activity. His guidelines follow a three phase process: a) the development of referent power; b) using motivating power to assist the client to make the desired behavior change; and c) maintaining motivating power after termination of the contact with the counsellor. Janis (1983) suggests the following three stage-approach to short-term counselling:

Phase 1: Building up motivating power
1. Encouraging clients to make self-disclosures versus not doing so.
2. Giving positive feedback (acceptance and understanding) versus giving neutral or negative feedback in response to self-disclosure.
3. Using self-disclosures to give insight and cognitive restructuring versus giving little insight or cognitive restructuring.

Phase 2: Using motivating power
4. Making directive statements or endorsing specific recommendations regarding actions the client should carry out versus abstaining from any directive statements or endorsements.
5. Eliciting commitment to the recommended course of action versus not eliciting commitment.
6. Attributing the norms being endorsed to a respected secondary group versus not doing so.
7. Giving selective positive feedback versus giving non-contingent acceptance or predominantly neutral or negative feedback.
8. Giving communications and training procedures that build up a sense of personal responsibility versus giving no such communications or training.

Phase 3: Retaining motivating power after contact ends and promoting internalization
9. Giving reassurances that the counsellor will continue to maintain an attitude of positive regard versus giving no such reassurances.
10. Making arrangements for phone calls, exchange of letters, or other forms of communication that foster hope for future contact, real or symbolic, at the time of terminating face-to-face meetings versus making no such arrangements.
11. Giving reminders that continue to foster a sense of personal responsibility

versus giving no such reminders.
12. Building up the client's self-confidence about succeeding without the aid of the counsellor versus not doing so (page 27).

A counselling program for enhancing regular exercise involvement was developed based on Janis' (1983) guidelines for short-term counselling (Wankel, 1988). The program was tested in two studies: a) a seven-month within-subjects study of ten individuals at an employee fitness centre, and b) a ten-week between-subjects study of the twenty-five members of an aerobics exercise class. Although, the counselling program was not effective to a statistically significant extent in increasing exercise behavior in either study, a positive trend in the second study together with positive feedback from participants in both studies suggested that further research on the intervention was warranted. A number of recommendations were made which included: a)the program should be flexibly implemented so that individuals can emphasize those aspects of the program that they consider most relevant to them; b) the adherence counselling should be provided in an integrated package with other exercise information (e.g. fitness appraisal, nutrition and stress management information), and; c) the counsellor should use discretion in selecting and emphasizing those components most relevant to the specific individual.

In a subsequent study, Janis' (1983) guidelines were used to evaluate the effectiveness of a short-term counselling treatment for facilitating regular physical activity involvement of non-institutionalized female seniors (Bocksnick, 1991). Subjects were assigned to either a counselling group or to a control group. Quantitative between-group analysis did not indicate statistically significant effects due to the treatment, largely because of large individual differences in health status and activity levels. Qualitative analyses, however, supported the effectiveness of the counselling treatment for individual

subjects. The study indicated the importance of individual health and other personal circumstance, to the success of adopting healthy lifestyle changes.

2.6 Methodological concerns

2.6.1 Methodological concerns in exercise adherence research

There exists no standard "best" method for conducting research. Quantitative analyses may be appropriate for certain research questions, whereas qualitative analyses may be appropriate for studying other questions (Locke, 1989; Sage, 1989).

Self-report instruments have been the most common method of measuring physical activity involvement (Hays & DiMatteo, 1987). Despite attempts to validate such instruments (e.g., Baranowski, 1989; Washburn & Montoye, 1986), instrument validity has remained a major problem in the field (Dishman, 1987). The first problem is that activities which are done outside of an organized setting may contribute greatly to cardiovascular fitness (Shephard, 1989), however, estimations of physical activity in intervention studies are generally made on involvement in structured exercise classes. Thus, the overall exercise involvement of an individual should be assessed, rather than just participation in a fitness class. In regard to health care, involvement in physical activity should be understood as a lifestyle behavior, and not just adherence to an exercise class. Secondly, estimations of exercise involvement are subject to error (Caspersen, Christenson, & Pollard, 1986; LaPorte, Montoye & Caspersen, 1985). For example, with respect to swimming activity an individual may record the amount of time spent near the water rather than the actual time spent swimming (Brooks, 1988).

Using "objective" criteria to assess adherence must be considered with caution (Levy, 1986). Even standard fitness variables such as weight loss, blood pressure and heart rate

can be misleading in determining adherence. The improvement or deterioration of these variables may be due to a number of reasons, of which activity adherence is only one.

2.6.2 Methodological considerations in evaluating counselling interventions

Wellman and McCormack (1984) submit that there are two inherent problems in counselling research. The first problem is based on the content of the sessions, which is influenced by a person-environment interaction. The two elements of this interaction must occur simultaneously in order for a positive change to occur. The second problem deals with the question of whether or not personal characteristics are quantifiable across people and across situations. There are so many variances in characteristics of individuals and circumstances which makes it difficult to categorize and in turn quantify. Therefore, the counsellor must adjust for each individual in order for the counselling to be successful (Krumboltz, Becker-Haven & Burnett, 1979).

It is difficult to make an objective evaluation of counselling because the behavioral changes may be due to the time the counsellor spends with the client (Nagel, Cimbolic, & Newlin, 1988). Therefore, if any behavioral changes do occur they could be due to a variety of things besides the counselling. In addition, such factors as the personal influence of the counsellor are difficult to control experimentally. Whether the counselling situation is effective or not depends on the perception of both the counsellor and the client (Gross, 1988). It is also dependant on the specific type of outcome of the counselling, for example, there might be more of a basis for agreement in terms of exercise counselling than there might be for anxiety or perceived well-being counselling. Generally, perceptions are subjective and therefore difficult to assess objectively.

The content of the sessions does pose a problem as due to individual differences and

a certain amount of open-endedness allowed for in the counselling sessions means that the exact same issues may not be covered in each person's session. In addition, again due to the open-endedness of the counselling sessions, the amount of time spent with each individual varies. Therefore, it is difficult to objectively evaluate the counselling effects.

However, for the purpose of this study, an effort was made to make the amount of time spent with each individual as equal as possible. In addition, even though the exact same issues may not be covered for each individual, participants were encouraged to keep their responses within the context of the questions.

Chapter 3 Methodology

3.1 Subjects

Potential subjects for the study were faculty members who responded to an advertisement in the weekly Northern Alberta Institute of Technology (NAIT) staff newsletter calling for individuals who were currently not involved in a regular activity program and who were interested in becoming more physically active. These people were invited to attend a meeting at which time the general nature of the study was explained. After this initial meeting nine individuals were chosen for the study due to their meeting the prescribed criteria.

The sample of nine adult volunteers was comprised of five females and four males. They ranged in age from 32 to 45 years with the mean age for the males being 40.8 years and that for the females being 40.4 years. The subjects varied considerably in level of physical fitness, ranging from "poor" to "excellent" (See Appendix A for reports of the physical fitness levels for eight of the subjects). Physical fitness assessments were not available for all nine subjects due to one of the subjects being ill at both the time of pre-testing and post-testing, and one other subject being seriously ill at the time of post-testing.

Atkins, Patterson, Roppe, Kaplan, Sallis and Nader (1987) tested the common assumption that volunteers were atypical of the general population. They found only marginal differences between those who volunteered and those who did not. Thus, although the recruitment process for this study allowed volunteer participation and did not emphasize complete randomness, it is felt that the results might be generalizable, with caution, beyond this small group.

3.2 Procedure

At the first meeting each individual was given an initial physical activity questionnaire to complete before leaving the meeting. Based on these assessments the nine most inactive individuals of a group of twelve were chosen as subjects for the study. The subjects were then given copies of weekly physical activity involvement logbook sheets and were asked to begin recording their daily physical activity, beginning the week of February 25, 1990. Instructions were given for completing the logbooks and the importance of keeping accurate records was emphasized. In addition, subjects completed a pretest questionnaire consisting of general questions dealing with such topics as motivation, previous attempts to maintain an exercise program, and social support (See Appendix C). Subjects were informed that they would be contacted by the researcher concerning when they would receive the counselling program as well as their initial physical fitness tests.

Each subject received the counselling treatment at the predetermined time period according to the multiple-baseline design (see Figure 1, page 32). Subjects F1, F2, and M1 had two weeks of baseline monitoring, followed by four weeks of the counselling treatment, and then twelve weeks of follow-up monitoring. M1, F3, and M2 received six weeks of baseline monitoring, followed by four weeks of the counselling treatment and ending with eight weeks of follow-up monitoring. The final three subjects, F5, M3, and M4 commenced with 10 weeks of baseline monitoring, then received their four weeks of the counselling treatment, followed by four weeks of follow-up monitoring.

The four week treatment program, consisting of a one to one and one-half hour personal counselling session once per week was based on Janis' (1983) guidelines for short-term counselling. Four sessions were used in accordance with Wankel's (1988b)

recommendation to use more than three counsellor-client interaction periods so as not to crowd too much information into each session.

The first and part of the second session concentrated on building up referent power. These sessions included the areas of exercise history, physical activity goals, and the decision balance sheet (a tool to assist the individual in determining both positive and negative reasons for participating regularly in a fitness program). The third session emphasized using referent power to facilitate the desired behavior change and included the areas of social support (identifying those individuals which may be most helpful in assisting the participant to adhere to their exercise program), goal-setting (short- and long-term goals), self-efficacy training (assisting the individual in becoming aware to what they attributed their successes and failures), and self reinforcement (assisting the individual in realizing and/or using various internal and external methods of reinforcing their decision to exercise). This session also focussed on any problems that may have been encountered in the previous weeks and how to potentially overcome them. The fourth session emphasized the retention of motivating power to enhance maintenance of the desired behavior change and allow the individual to internalize decisions made during previous sessions. The final goal was to aid the individual in adopting and maintaining an increased level of physical activity involvement. Detailed information on the material covered in the counselling sessions is presented in Appendix B.

In the weeks following the treatment intervention (number of weeks varied among the subjects due to the multiple baseline design) the individuals continued to monitor their physical activity levels. This involved personal self-monitoring by the subjects as well as submitting a written record of participation in order for the amount of physical activity to be evaluated by the researcher. During the final week (week number 18) the

subjects received their post physical fitness assessment. In addition during the final week, all subjects completed a post-test questionnaire (similar to the pre-test) and an evaluation of the fitness adherence counselling program.

3.3 Research design

The research design for the study is illustrated in Figure 1. A multiple baseline design was utilized where the subjects acted as their own control and spurious effects could be identified such as weather changes.

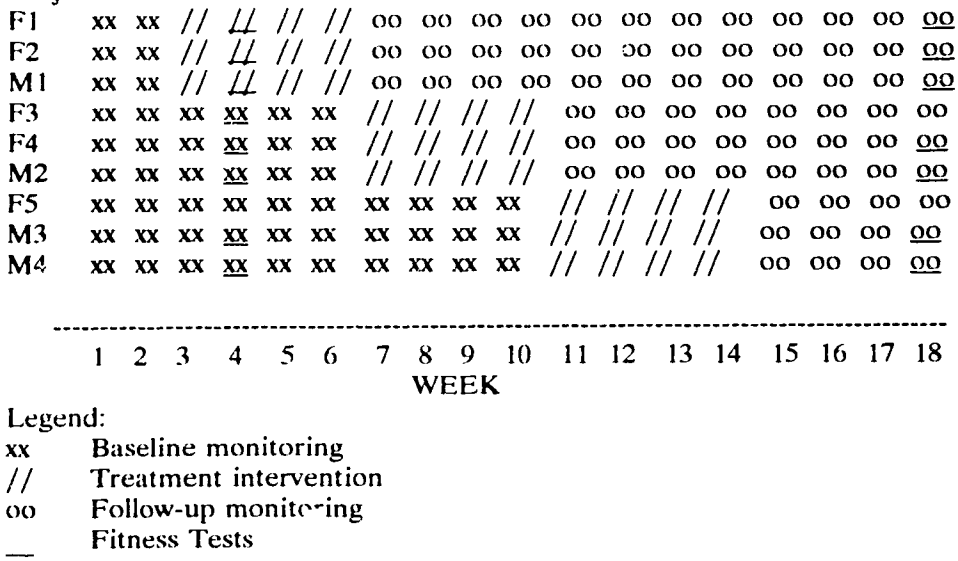

Figure 1
Research design for the study

3.4 Test Instruments

3.4.1 Pre-study questionnaire

At the beginning of the study the volunteers responded to questions (Appendix C) which provided the following information about themselves:

1. Motivators. Mark in descending order from the five choices the prime motivators given for embarking on the fitness program.

2. Motivation. Three five-point Likert-type questions assessed confidence and motivation level towards their fitness goals.

3. Achievement. One five-point Likert-type statement determined how near the individual was to achieving his/her fitness goals.

4. Knowledge. One five-point Likert-type statement determined what skills the individual felt he/she needed to learn in order to fulfil the fitness goals.

5. Support. One five-point Likert-type statement assessed the level of social support available to the individual.

6. Importance. Two five-point Likert-type statements assessed the urgency and attempts made by the individual to change his/her fitness lifestyle.

3.4.2 Post-study questionnaire

The post-study questionnaire was designed to assess any perceived changes in health and physical fitness, as well as enjoyment of the program (Appendix C). A number of five-point Likert-type statements assessed perceived changes in weight, diet, mental attitude, energy level and health. Three five-point Likert-type statements dealt with enjoyment of the physical activity chosen and the program in general. The questionnaire also assessed the effectiveness of the various aspects of the short-term counselling. The subjects were asked open-ended and five-point Likert-type statements in order to evaluate and give their impressions and reactions to the counselling program.

3.4.3 Physical activity logbook

Physical activity involvement was assessed by the subjects completing one-week physical activity logbook forms. Each individual completed eighteen forms and submitted them bi-weekly to the NAIT Physical Education office. Subjects reported any physical activities which were done in order to improve or maintain their physical fitness. The duration, intensity, location and social context for each activity was recorded. In regard to intensity level, three choices were given ranging from light (slight change), to medium (some perspiring, above normal breathing), to heavy (heavy perspiration, heavy breathing). See Appendix C.

3.4.4 Fitness appraisal

The subjects' fitness levels were determined at the beginning and end of the study by administering the Canadian Standardized Test of Fitness. The test was administered by certified fitness appraisers who tested the subjects' body composition, strength, trunk flexion and aerobic capacity.

3.5 Data analyses

The effectiveness of the counselling program for an individual was assessed by examining the exercise frequency and duration graphs. A treatment effect would be evident with an upward shift in these behaviours during the treatment phase above the baseline level. Through comparison of the graphs of individuals receiving their treatment interventions at different times (i.e., through multiple baseline examination), the confounding effects of seasonal and environmental influences can be identified providing greater confidence in any observed effects attributed to the treatment intervention.

Information from the self-monitoring logs, the pre- and post- questionnaires, and the counsellor's counselling notes was used to perform a qualitative assessment of each case. Attention was paid to the differential influence of the individual components of the intervention (e.g., goal-setting, self-monitoring, decision balance-sheet, and enjoyment) on the exercise adherence process.

The overall group results (physical activity graphs plus the questionnaire results) were used to draw general overall conclusions concerning the effectiveness of the intervention.

Chapter 4 Results & Discussion

4.1 Qualitative Analyses

4.1.1 Summary of case reports

The available information was utilized to conduct an analysis of the activity involvement process for each individual. The areas explored include goal-setting, decision making (e.g., completion of a decision balance sheet), self-monitoring, attribution of success/failure, writing a contract, social support system, self-reinforcement, relapse prevention, and progress of physical activity involvement.

The following summary of the qualitative analysis is structured according to the analysis for each individual case (See Appendix E). The individual information is synthesized to accomodate a more generalized evaluation of the intervention efficacy.

4.1.1.1 Exercise history

All individuals in this study had tried to adhere to some sort of exercise program at one time or another. However, none of the subjects had been able to maintain their program. The subjects offered a variety of reasons for previously having discontinued their self-initiated exercise programs.

Three of the nine participants (M1, M3, F5) cited illness or injury as the primary factor for terminating their exercise program prior to this study. The subjects expressed that after their recovery they had little or no self-motivation to restart their exercise programs.

The remaining six participants cited work or lifestyle changes as interfering with their exercise programs. They reported difficulty in fitting an exercise program into, or around, their work schedules. They felt that erratic work load schedules over the

semester were responsible for their inconsistent adherence to their fitness program. In addition to this factor, two individuals (M3, F4) also reported that lifestyle changes, marriage and pregnancy, compounded the difficulty of adhering to their fitness programs. This trend of a decline of physical activity involvement during the mid-years (35 to 55 years of age) and the reasons given for noncompliance is in agreement with general trends reported for Canadians (Stephens & Craig, 1990).

Four of the subjects had participated in organized fitness classes, such as aerobics and hydragym. Another very popular activity was walking, which seven of the individuals had tried to work into their daily schedules. Other aerobic activities with varying levels of popularity were cycling and swimming. While four enjoyed cycling only one reported swimming. However, others had tried swimming at some point in time. Yoga, even though not an aerobic activity, was found to be very popular with two of the individuals. This is in agreement with the findings from the Campbell's Survey of Well-Being (Stephens & Craig, 1990), where walking was found to be the most popular physical activity for Canadians between 35 to 55 years of age. In contrast only three people had tried jogging and two contemplated adding it to their program once again.

The factor of enjoyment was considered during this section. Most of the participants had a list of activities which they enjoyed doing and a list of those which they had attempted, but did not find enjoyable. All subjects had no desire to include any of the unenjoyable activities in their program.

4.1.1.2 Reasons for initiating exercise

The individuals in the study wanted to once again start an exercise program for a variety of reasons. Most subjects stated multiple reasons of varying importance,

however, they were all health related.

Anticipation of improved well-being was the most important reason given for exercising by three of the subjects (M1, F5, F1). For these participants, improved mental, physical and spiritual health were equally important benefits to be gained from exercising.

Weight loss was the prime reason for exercising for three of the subjects. Two of them (M3, M4) viewed weight loss primarily as contributing to their physical health, while also enhancing their physical appearance. Whereas, for F4, weight loss for the purpose of enhancing her physical appearance was the prime motivator and improving her physical health was secondary.

Stress reduction was the primary motivator to exercise for one of the subjects (F2). She felt that the release of stress experienced during exercise was the most important reason for exercising. While not being a primary factor, exercise as a stress release was also cited by seven of the other participants. Physical health was viewed by only one of the participants (F3) as the most important reason to exercise. She felt that she received sufficient mental exercise at work and needed a balance through a physical workout.

A family history of medical problems was given as the prime motivator to exercise by a male participant (M2). Many members in his family had at one time experienced or even died from cardiovascular disease. This potential hereditary risk-factor triggered in him a feeling of increased susceptibility which resulted in him choosing exercise as a means of preventive health care.

4.2 Quantitative analyses

4.2.1 Data analysis

Individual graphs of exercise frequency and exercise duration provided the basis for assessing the overall effectiveness of the counselling program. It was hypothesized that a treatment effect would be evident as an upward shift in exercise frequency and duration during the treatment phase when compared to the baseline assessment.

4.2.1.1 Frequency of exercising

Figures 2, 3 and 4 depict the frequency of exercising (sessions per week) for the female and the male subjects. The graphs for individual subjects may be found in Appendix D. The data indicate an increase in frequency of exercise during and after the intervention treatment over baseline levels. Pre-session weekly exercise rates ranged from 0 to 3.5 sessions per week. As a result of the treatment program the exercise sessions increased ranging from 1.25 to 12.5 per week. Post-treatment measurements indicated that participants adhered to their exercise program. These sessions ranged from 2.25 to 8 per week. These figures exclude subject M2 whose exercise frequency only increased when his work schedule coincided with the campus fitness classes offered.

Two other subjects also experienced times when their exercise levels fell below their baseline monitoring levels. These were due to illness (M3) and serious spousal illness (M4). However, they did resume their exercise programs once the illnesses had passed. Overall, it appears that the counselling intervention had an effect on increasing exercise frequency over baseline levels.

Figure 2
Frequency of Exercising - Group 1

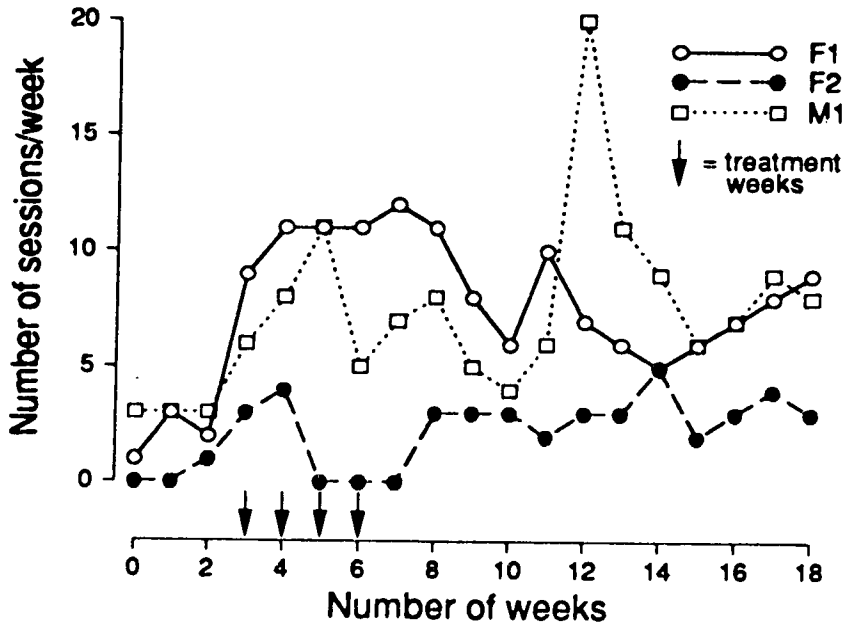

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Figure 3
Frequency of Exercising - Group 2

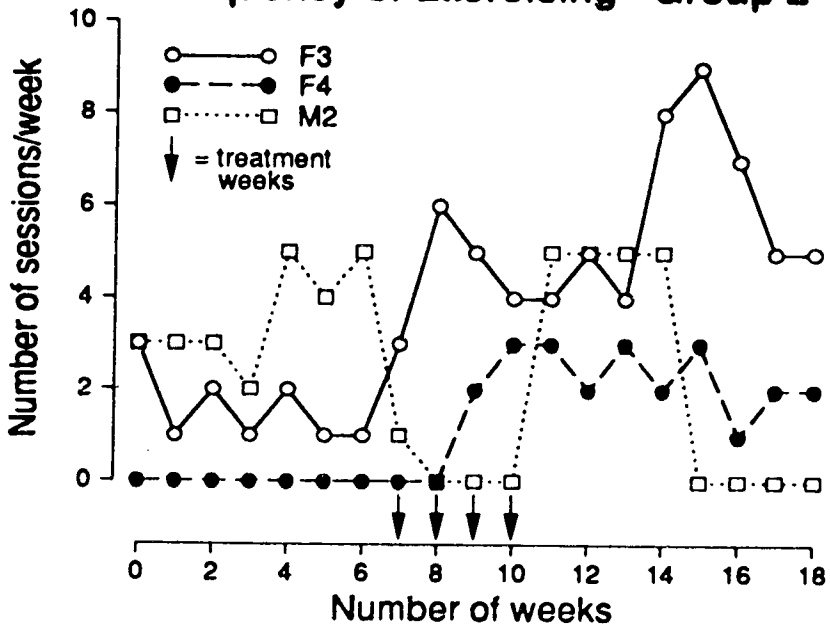

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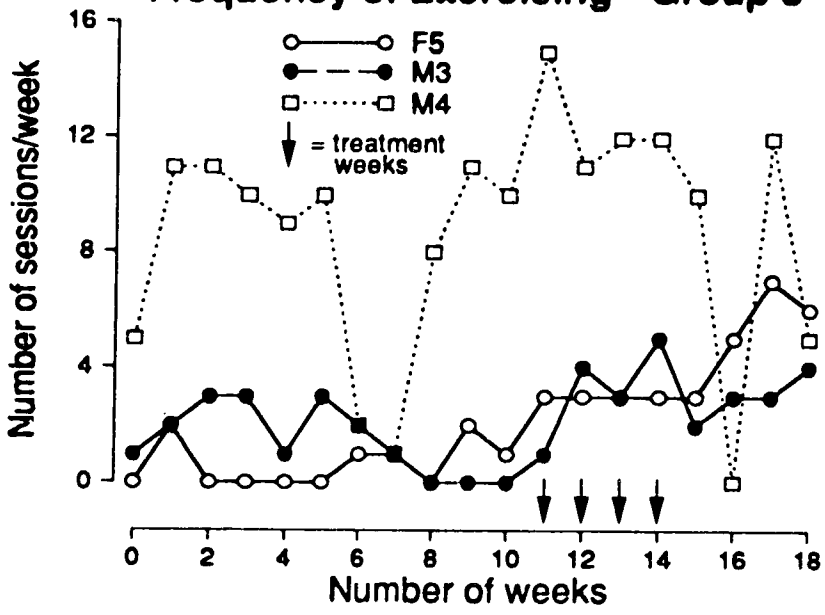
Figure 4
Frequency of Exercising - Group 3



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4.2.1.2 Fitness Tests

The fitness test results (pre and post-treatment) for the subjects are summarized in Table 1. For the seven individuals who participated in the post-physical fitness assessment, most participants experienced improvements in the various areas tested.

For the anthropometric measurements most of the participants' results remained consistent except for M1 (improved in Sum of Skinfolds [SOS]), M2 (improved in Waist to Hip Ratio [WHR] and declined in SOS), M4 (improved in SOS and Sum of Trunk Skinfolds [SOTS]), F2 (improved WHR), F3 (declined in Body Mass Index [BMI]).

Many of the participants' measurements showed changes for the strength, endurance and flexibility tests (see Table 1 for results). In addition, four of the seven participants who participated in the post-physical fitness assessment showed marked improvements in their cardiovascular fitness level by all having "excellent" ratings. Three of the subjects had no changes (F1 and F2 [excellent] and M3 [poor]). These improvements coincide with the general physical activity level increases due to the counselling intervention.

4.2.2 Post-study Evaluations

A questionnaire was administered following the study to assess the subjects' reactions to the program (See Appendix C). The participants were generally very positive toward the counselling program. On a five-point (very negative -- very positive) Likert-type scale anchored on very negative (1) and very positive (5), the mean score was 4.4 (question B,3). Similarly, all nine of the participants indicated that they would recommend the program to others who were in the process of adopting an exercise program (question C,13). Two of the respondents also indicated continuing use of information gained from the program "regularly" while seven others reported "occasional"

TABLE 1
Physical Fitness Test Results

Subject	BMI	SOS	WHR	SOTS	PUSH-UPS	CURL-UPS	TRUNK FLEX	VO2 MAX
F1 1	ave	above ave	above ave	ave	below ave	0	exc	exc
2	ave	above ave	above ave	ave	above ave	ave	exc	exc
F2 1	exc	above ave	above ave	ave	poor	0	exc	exc
2	exc	above ave	exc	ave	below ave	0	exc	exc
M1 1	above ave	ave	above ave	ave	above ave	above ave	poor	ave
2	above ave	above ave	above ave	ave	above ave	above ave	poor	exc
F3 1	exc	exc	exc	exc	below ave	below ave	ave	below ave
2	above ave	exc	exc	exc	above ave	below ave	poor	exc
F4 1	above ave	below ave	above ave	ave	0	ave	above ave	above ave
2	----	----	----	----	----	----	----	----
M2 1	poor	below ave	poor	poor	ave	poor	ave	below ave
2	poor	poor	ave	poor	above ave	ave	ave	exc
M3 1	below ave	poor	ave	poor	above ave	exc	poor	poor
2	below ave	poor	ave	poor	above ave	exc	ave	poor
M4 1	ave	poor	exc	poor	poor	exc	ave	below ave
2	ave	below ave	exc	below ave	above ave	exc	ave	exc
F5 1	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---

BMI - Body Mass Index
SOS - Sum of Skinfolds
WHR - Waist to Hip Ratio
SOTS - Sum of Trunk Skinfolds
Trunk Flex. - Trunk Flexibility

1- initial fitness appraisal
2- final fitness appraisal
ave - average
exc - excellent

use. Table 2 summarizes the nine participants' mean responses to the interview questions.

Questions B4-5, and C2-12 were five-point Likert-type scales anchored on not at all beneficial (1) and very beneficial (5). Question B2 was anchored on not at all (1) and a great deal (5). Question C1b was anchored on not at all helpful (1) and very helpful (5).

The data supports the positive effect of the various techniques utilized in the counselling package. The component receiving the lowest rating was that of social support. However, comments from most of the participants indicated, that social support itself is very important and those who initially felt that it was not, later commented that they felt they would have done even better if they had more social support.

TABLE 2
Descriptive Statistics for Participant Responses to the Structured Interviews (Five Point Likert Scales)

Item		Mean
B. General		
2.	Extent that information was used	3.4
3.	Reaction to program	4.4
4.	Knowledge of adherence problem	3.6
5.	Program impact on maintaining activity involvement	4.0
C. Specific Components		
1.	b) Keeping exercise logbook	3.3
2.	Information of adherence problem	3.8
3.	Information on desirable exercise practices	3.4
4.	Discussion of personal exercise history	3.8
5.	Decision balance sheet	3.4
6.	Graphing own exercise behaviour	3.2
7.	a) Short-term exercise goals	4.6
	b) Long-term exercise goals	4.2
8.	Social support	3.1
9.	Weekly "feedback" discussion	3.9
10.	Attributions for success/failure	3.8
11.	Environmental planning for exercise	3.7
12.	Self-reinforcement techniques	3.3

4.3 Utilization & Evaluation of Different Components of the Counselling Program

Goal-setting. Goal-setting proved to be an important aspect of all the participants' exercise programs. Setting short-term goals was found to be most helpful in assisting the subjects to adhere to their programs. Each individual determined weekly goals. Some (F1, M1, M3) were very specific regarding the type of their exercise activities, dates and times, while others (F2, F3, F4, M2, F5, M4) were more general in their descriptions of their planned weekly activities.

All participants specified long-term goals. Generally, these goals dealt with areas such as performing better on the next fitness appraisal, losing a certain amount of weight or inches, or being able to perform exercises with less effort, or being able to do more with less fatigue. However, the most important long-term goal stated by all subjects was incorporating a fitness program into their lifestyle. The subjects expressed the objective of making exercise part of their normal routine, and not an extraordinary activity.

The majority of the subjects had stated that in earlier attempts to adopt a regular exercise pattern they usually had mainly long-term goals in mind which they concluded led to problems. They found themselves becoming increasingly frustrated when the deadline of their goal approached because they had not exerted sufficient effort to achieve their goal. In contrast, setting short-term goals helped these subjects in experiencing success and in return made the accomplishment of long-term goals more realistic.

Decision-balance sheet.(DBS). The responses to the decision-balance sheet indicated that the perceived benefits from beginning an exercise program outweighed the negative aspects. This is not surprising because the subjects had already committed themselves to an activity program at the time the DBS was administered. Thus, the DBS served as a

reinforcement of their behavioral intentions rather than as a tool for initial decision making. However, the reinforcement may have led the participants to have a greater commitment to the program.

Some individuals were quite specific in their responses as they expected increases in physical fitness and well-being. Other subjects stated more non-specific outcomes to result from participating in physical activity.

The anticipated gains to self reflected mainly improvement of physical fitness and psychological well-being. In contrast, the major anticipated loss to self was time. Many of the participants felt that by making time for their physical activity they would be giving up time for other activities such as time for professional development, watching television, and relaxation or doing nothing.

Anticipated gains to important others included such diverse areas as enjoying physical activities with a spouse and/or family. The latter was influenced by subjects' anticipation of better physical shape and increasing confidence in trying new activities. Once again time was an important issue in describing losses to important others. Many subjects felt that they might have less time to spend with their spouse and family by engaging in a physical activity program.

In anticipating approval from others, the subjects expected positive comments regarding their physical appearance from family and friends. The subjects also suggested that improved physical appearance may result in a better personal attitude which may contribute to better relationships with other individuals. The anticipated disapproval from others dealt with individuals being resentful of not being able to spend the same time together as before. For example, one individual was concerned about curtailing weekly "drinks with the boys" in order to remain physically fit. Two individuals

mentioned that family members may perhaps feel jealous of their improved level of physical fitness or feel pressured to also start a physical activity program.

Self approval was seen by most subjects as feeling good about themselves. This belief was attributed to finally doing something they had wanted to do for a long time and also recognizing the benefits from their action. Conversely, not adhering to the program, procrastinating, or not reaching personal goals were sources of self-disapproval.

Self-monitoring. The positive influence of self-monitoring on increasing physical activity is supported by a number of studies (Juneau et al., 1987; King et al., 1986; Noland, 1989) and was also evident in the current study. The subjects reported that self-monitoring increased their awareness of their physical activity behaviour which may have compelled them to engage in exercise so that they would not have to submit a blank activity diary. Therefore, any self-monitoring effects noted might be partially due to an anticipation of evaluation from the researcher.

In addition to the self-monitoring technique of completing a diary, the strategy of graphing weekly exercise involvement was discussed during the counselling sessions. Two of the subjects (F2, F3) used the graphing and F2 intended to continue to do so after the study ended. Two other subjects (F4, M1) had intended to use the graphing but did not succeed in their attempt during the course of the study. The remaining participants found graphing inconvenient and not helpful in reaching their goal.

Attribution of success. The subjects tended to attribute their successes and failures to internal factors. Success was seen as accomplishing a short-term goal and conversely failure was seen as not achieving this. Some of the subjects regarded failures as being caused by both internal and external factors. For example, spousal illness was seen as something external which would require more time allotted to family responsibilities and

less time for physical activity. These failures, due to external causes, did not lower the subject's self-efficacy as they felt it was only a matter of time until they would be able to resume their program.

This is in agreement with Bandura (1986), who suggested that deficient performances are unlikely to substantially lower perceived efficacy when individuals discount failures by attributing outcomes to unstable causes, such as insufficient effort, adverse conditions, despondency, or physical dehabilitation.

Writing a contract. All subjects reacted positively to the idea of using a contract as a form of commitment to their activity program. However, only one subject (M2) seriously considered using this option, although he never utilized the strategy during the course of the study. According to the subjects' responses, setting of weekly short term goals was a sufficient and satisfactory form of committing themselves to their personal activity programs, which in turn precluded the necessity for writing a contract.

Social support system. All subjects reported benefits resulting from the use of a social support system. The support system consisted mainly of spouses and/or other family members. Two of the subjects (F1, F2) initially felt that a spouse or family member may feel resentful about their new activity program for a variety of reasons. Another subject (M4) felt that his spouse was indifferent to the program. At the end of the program these subjects reported positive support from their spouses and/or family members.

In five cases subjects included co-workers and other participants from this study in the support system. Four of the subjects (F1, M1, F3, M4) reported support from colleagues while two subjects (F1, F2) provided some support for one another. In addition, F2 also encouraged another subject, M2. Despite F4's initial intention of

pairing up with another individual for support, she never acted upon her plan. At the end of the study she stated that an exercise buddy probably would have been helpful.

The type of social support that was offered by the variety of individuals was often that of actively participating with the subject in an activity. It also included passive support by providing encouragement by verbal reminders or compliments.

Social support was an important factor for all of the study participants which is in agreement with findings in other studies (Levy, 1986; Daltroy & Godin, 1989; Sallis et al., 1987; Wankel et al., 1985).

Self-reinforcement. Five of the subjects perceived self-reinforcement as being relatively important regarding their adherence to an exercise program. Five of the subjects utilized self-reinforcing techniques such as self-talk and extrinsic rewards. However, they did not use these strategies deliberately as part of their program. The counselling contributed positively by raising the subjects' awareness of various reinforcers and their effective utilization. For example, F2, upon reaching a short-term "inches lost" goal bought herself a new exercise outfit.

All subjects reported that immediate gratification was one of the best aids in reinforcing their program adherence. Various types of personal gratification were experienced. For example, individuals reported that they experienced increased motivation in adhering to their programs when they could see by the scale or tape that they were losing pounds or inches or by being able to increase the intensity of their workouts. These results could also be of a psychological nature where individuals could feel the stressors of the day leaving them or by feeling better because they had accomplished the challenge of completing their workout.

Five of the subjects (F1, M1, F3, M4, F5) utilized self-talk as a reinforcing technique.

They found it assisted them in focussing on the positive outcomes, which would occur by them exercising, rather than on the deterrents.

Four of the subjects utilized extrinsic rewards as reinforcers. For some (F1, F2, M1) this involved the purchase of a new outfit after losing a specified number of pounds or inches. For one individual (F5) this meant registering in a personally challenging activity (a weekend hike in the mountains) after accomplishing certain exercise goals.

Relapse prevention. This area caused the greatest trepidation for the subjects. The majority of the subjects believed that if they missed an exercise session they might once again abandon their entire exercise initiatives. The counselling assisted the subjects in realizing the necessity of rest periods and in resolving the misconception that fitness gains were not lost entirely if one or two sessions were missed.

There were only a few subjects who relapsed temporarily to a sedentary lifestyle. Three of the subjects (F2, M1, M3) relapsed because of illness or injury, while another subject (M4) stopped exercising because of serious spousal illness. Another subject (M2) experienced compliance problems every time his work schedule did not coincide with the organized fitness class schedule. Despite these temporary program interruptions the subjects resumed their activity schedule once their reason for relapsing had ceased.

Enjoyment was also a factor in relapse prevention. If an individual tended not to enjoy the physical activities he/she was engaged in, then he/she was encouraged to choose other activities which were enjoyable. This was done in order to maintain or increase the subject's motivational level in an attempt to promote return to one's program in the event of a relapse.

For example, subject F4, felt running was the best exercise choice. However, she found that she no longer enjoyed it as she once had and this appeared to be one of the

reasons that she had difficulty maintaining and resuming her program. Therefore she was encouraged to try a different activity such as walking.

Based on the results of the post-study questionnaire and the physical fitness assessment, it would appear that the various methods of intervention dealt with during the counselling sessions assisted most of the participants in adhering to their chosen fitness programs.

According to the post-study questionnaire the most helpful components were that of setting short- and long-term goals. Other components which were also found to be useful was the information on exercise adherence, discussion of personal exercise history, weekly feedback discussions, attributions for success and failure, and environmental planning for exercise. The remaining components of self-monitoring logs, Decision Balance Sheet, graphing exercise behaviour, self-reinforcement techniques, and social support were also found to be useful but to a lesser extent than that of the others.

However, due to comparisons of information gathered during the counselling sessions and questionnaire results, the component of social support was determined to be more useful than originally viewed, even though it received one of the lowest ratings on the post-study questionnaire. Originally it had not been viewed by the subjects as something that would significantly assist them in adhering to their exercise program, however, its utility gained popularity over the course of the study.

Chapter 5 Summary, conclusions, and recommendations

5.1 Summary

The purpose of this study was to investigate the effectiveness of an exercise adherence counselling program (Wankel, 1988) based on Janis' (1983) short-term counselling guidelines for regular involvement in exercise over an 18-week period. It involved a within subjects multiple baseline design study of the frequency of nine subjects' exercise behaviour over an 18 week period. It was conducted with volunteers (faculty/staff) from a post-secondary institution.

The program consisted of four sessions which involved a three stage approach. The first phase dealt with building up motivating power and the second phase involved using that motivating power. The final phase involved assisting the participants to retain their motivating power and promoting internalization of changed behaviours which ideally would continue after contact with the researcher had ended.

The first and part of the second session concentrated on building up referent power. These sessions included such areas as exercise history, physical activity goals, and the decision balance sheet. The third session emphasized using referent power to facilitate the desired behaviour change and included such areas as social support, goal-setting, self-efficacy training and self reinforcement. This session also focussed on any problems that may have been encountered in the previous weeks and how to potentially overcome them. The fourth session emphasized the retention of motivating power to enhance maintenance of the desired behaviour change and allow the individual to internalize decisions made during previous sessions.

On the basis of the literature review, three hypotheses were derived. The first being that the onset of the counselling program would result in increased levels of physical

activity. This proved to be the case for all subjects with the exception of M2 and M3.

The second hypothesis proposed that participation in the counselling program would result in increased adherence to the chosen program. This proved to be true for all subjects with the exception of M2 who was the only subject who did not report any physical activity for the final weeks of the study. However, all other participants were still involved in some form of regular physical activity. Even those experiencing bouts of illness (F2, F5. M3, and M4) returned to their physical activity program.

The final hypothesis proposed that enjoyment would be important to continued involvement in one's activity program. Some support was derived for this hypothesis, through information gained in the counselling sessions. Subjects tended to adhere to those activities which they enjoyed the most. The subjects tried at least two or more different activities when they were initially starting their program. However, they quickly focussed in on those activities from which they derived the most pleasure or enjoyment.

The physical activities which were viewed by the participants as enjoyable tended to be the ones which had a recreational value. They were activities which could potentially be conducive to socialization, be it with family or friends. They were not of a highly intensive nature. In addition, the activities tended to reflect skills which an individual had always been interested in improving in order to help them attain a specific goal or purpose. For example, M1 used biking as one of his physical activities because he thought bike touring through France would be a great way to view the country side.

5.2 Conclusions

Based on the evaluation of the program and the counselling sessions, most areas of the program were found to be helpful in assisting the individuals with their exercise

programs. However, some aspects of the program were more helpful than others.

One of the aspects most favourably evaluated by the participants was that of goal-setting. Participants especially found setting short-term goals to be helpful in assisting them with their programs. The counselling sessions themselves were viewed favourably. Participants reported that they thought it was helpful to be able to meet with someone and receive feedback based on what they had been doing.

In addition, having fitness testing in conjunction with activity counselling assisted the participants in setting up a program. It gave them an idea of where they were starting, areas in which they needed to improve, and a specific plan with which to work. Emphasis on selecting enjoyable activities assisted the participants with both the selection of activities and adherence to their exercise program.

The use of referent power with Janis' short-term counselling appeared to be effective for most participants in the study. Based on the results of the 18 weeks and the fact that they never contacted the researcher outside of the sessions, even though they were encouraged to if they encountered any problems, the subjects, with the exclusion of M2, were able to internalize the various aspects of the program which assisted them with changing their behaviours.

Subject M2's difficulty in consistently adhering to an exercise program may have been partly due to his not looking at the exercise as a lifestyle change but rather as an ends to a mean. He was not prepared at this point in time to schedule his exercise sessions in even if it did not coincide with his work schedule. Generally, the other subjects appeared to be more prepared to schedule their exercise sessions in whenever necessary. One of their main concerns was that they wanted physical fitness to become a normal part of their lifestyle and were willing to put forth the effort to achieve this goal.

5.3 Recommendations for Future Research

The present study provides evidence that the short-term counselling program was useful for enhancing regular activity involvement. Future research assessing short-term counselling for the purpose of exercise adherence should consider the influence of important personal and situational moderator variables. Individual variables which might moderate treatment effects include: self-motivation, self-reinforcement styles, coping strategies, and subject's fitness level. The situational variables likely to moderate counselling effects might include type of activity chosen, emphasis on success and social support systems. It might be helpful if more emphasis were placed on these particular areas so as to specifically determine what their effect might be on a participant.

Although some of these elements were addressed in the counselling intervention itself, it might be useful to investigate how these personal and situational variables might increase the effectiveness of utilizing the program by the participant and delivery by the counsellor. Due to there being only four sessions of a somewhat specified time limit it was difficult to deal with all of these variables to the extent which might be desirable. Therefore, either the number or length of sessions needs to be increased or the content of the sessions needs to be pared down in order to effectively cover the desired topics.

The latter suggestion may prove to be difficult as the program can only become more individualized after all the initial sessions have covered the various basic areas. Therefore, it appears that more sessions are needed in order for the information to be truly tailor-made to the individual.

However, it might also be possible to focus on the three or four most useful components of the program and therefore decrease the amount of information covered during the sessions.

The aspect of enjoyment needs to be investigated more thoroughly. The extent to which enjoyment of a physical activity affects an individual's adherence to their exercise program needs further study. In addition, there is a need to investigate what activity, situational and program factors are generally important to enjoyment. There is also a need for more controlled research to investigate the effectiveness of the program in contrast to other interventions.

The various components of the program could potentially be utilized by individuals in the fitness industry. For example, someone who designed exercise programs or conducted fitness appraisals might find it helpful to use the information on goal-setting or social support or any other component which may appear to be applicable.

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APPENDIX A

FITNESS REPORTS

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APPENDIX B

THE COUNSELLING PROGRAM

Session One

1. Did you have your fitness test? How did it go?

2. Have you participated in regular physical activity in the past?

3. If yes, when was the last time you participated in a regular exercise program?

4. What were your reasons for stopping the exercise program?

5. Do you think that exercise is important? Why?

6. What do your feel are the benefits?

7. How satisfied are you with the amount of exercise you are doing now in terms of frequency, duration and intensity?

8. Do you want to increase the amount of exercise you are doing now in terms of frequency, duration and intensity?

When it comes to attaining certain benefits from exercise it is important to achieve a minimum level of exercise. According to research studies it seems that a minimum frequency of three times per week at a moderate intensity, for a duration of 20-30 minutes is recommended to demonstrate changes in fitness levels. If an improved fitness level is one of your goals then you may want to consider these factors.

9. Do you have other related goals such as weight loss, increased muscular tone, an increased feeling of well-being, social interaction, etc.?

10. What type of activity do you think you would find enjoyable? Or what types of activities have you found to be enjoyable in the past?

Some potential ways to make exercise more enjoyable would include things such as adding variety to your exercise routine. Since you are aiming for general physical fitness you can do a number of different activities per week. You don't have to limit yourself to only one activity, and in this way you will hopefully maintain your interest level. This might also add some challenges to your workouts, for example, if your body is used to a particular kind of workout you might challenge the muscles in another way by doing a different activity. In addition, if you generally try to work out on your own, then perhaps you might want to try a fitness club or get together with a group of friends to exercise in order to provide a little extra motivation.

11. What do you do to motivate yourself? What worked for you in the past? How might you plan to build on the good things?

12. Did you have any problems with the weekly recording of your exercise?

13. Did you find that your weekly recordings in your physical activity logbook helped

you become aware of how much and what kind of exercise you were participating in?

14. Do you feel that it helped you to increase your exercise participation in comparison to the exercise you were doing prior to the monitoring?

Decision Balance Sheet

15. Are you aware of the general problem with "sticking" to an exercise program?

Difficulty adhering to an exercise program is a common problem. Generally, the adherence rate for exercise programs is about 50%. The main reason for this drop-out is a lack of motivation to continue. This is because people often do not have an adequate plan to succeed, i.e., do not organize their time and activities effectively. Many people who want the benefits of exercise, drop-out before these benefits can be achieved.

You mentioned earlier that you have had problems maintaining an exercise program and you identified some factors which can explain why you have dropped out of past exercise programs.

It is great that you are aware of these problems, this is important so that you can plan to overcome these problems. You can plan to succeed in exercise as in business or any other endeavors if you approach it systematically and work on it. One way of systematically planning for success in an exercise program is to work through a decision balance sheet. Your decision has been to start a regular exercise program.

By carefully considering the possible outcomes of a decision you will be able to better anticipate consequences down the road and to effectively plan to overcome any potential hurdles. This may help you to discover the pros and cons that are being overlooked. As this simple technique has been found to be helpful for a large number of people I would recommend that you try it.

16. Would you be willing to spend a few minutes now completing a "decision-balance sheet". Take your time in each category.

In the box labelled "Gains to Self" list all potential gains or benefits that may result from a regular exercise program.

In the box labelled "Losses to Self" list any difficulties, losses, or costs you may encounter as a result of participating in a regular exercise program.

In the next category labelled "Gains to Important Others" list the gains or advantages that the people important to you (e.g. spouse, family, or friends) would get if you participated in a regular exercise program.

"Losses to Important Others" list any losses or costs that your being in an exercise program may cause those people important to you.

"Approval from Others" list the ways in which you would gain approval from others by being in an exercise program.

"Disapproval from Others" list the reasons others would disapprove of you participating in an exercise program.

"Self-approval" list the ways that by being in an exercise program will result in your own disapproval.

Now I would like you to read the list over aloud to me. Concentrate on one category at a time. When you consider the "Gains" category really think about the benefits to be gained.

When you think about the "Losses" category remember that to be successful in a regular exercise program you will have to deal with or overcome these obstacles if they arise.

(I respond with reinforcing comments to positive items to emphasize the benefits).

(I acknowledge negative items with comments such as "Yes that could be a problem but can you think of how you can overcome it?" or "It is good that you are aware of that so that you can plan to get around it".)

As you can see there are a number of benefits from your exercise program but there are also some potential problems that you should be aware of so that you can plan to overcome them.

SOCIAL SUPPORT

On the decision-balance sheet, the categories of "Approval from Others" and "Disapproval from Others" showed how your exercise program would gain approval or disapproval from others.

You had said.....

Social support means that other people encourage and assist you in doing what you want to do.

17. Do you have any type of social support?

18. If yes, who is it that is involved in your exercise program?

19. In what ways do they provide social support or encouragement for your exercise program?

Social support from family or friends, or other program participants can help to maintain a regular exercise program. This support can be in the form of verbal encouragement or praise, and in practical forms such as transportation, equipment, reminders, etc.

It is important that family and friends are informed of your decision to participate in a regular exercise program, and that they understand the benefits both you and they will receive from it. In this way they can have a very positive influence on your program.

20. Who are those important people to you that will be affected by your participation in a regular program?

21. Do they know of your decision?

22. If yes, then have you discussed the potential benefits you will receive from the program? And the potential benefits they will receive from the program?

23. How can these other people assist you in maintaining your exercise program?

You should also discuss these aspects of your social and family life which may conflict with your regular exercise program. It would be a good idea to plan ahead to avoid these potential problems so that you can succeed in your exercise goal.

24. What are some of the problems which may arise in your social of family life with your activity program?

25. Have you discussed these potential problem areas with family and/or friends?

26. Are their ways in which you can overcome the problems of your social or family life conflicting with your exercise program?

27. Have you discussed these solutions or plans with your important others?

Another form of social support is the buddy system. Often it is helpful to partner up with someone who is participating in a similar exercise program. A partner can provide encouragement, companionship, and assistance in reaching desired goals.

28. Is there anyone you can think of who might be suitable as a partner in your exercise program?

GOAL-SETTING

To achieve success in any program --- goal-setting plays an important role. Short-term goals can be set initially in a new program on a weekly basis. These goals should be realistic and attainable.

For best results, goals should be specific and behavioural. For example, a statement such as "I want to decrease my resting heart rate to 60 bpm", is not a short-term specific goal. However, a statement such as "I am going to take 3-30 minute walks this week is a short-term goal which is both specific and behavioral.

29. Do you think it would help you if you set some specific short-term exercise goals for next week?

30. What type of exercise would you like to participate in next week?

31. How many times would you like to exercise in the week?

32. What is the duration of exercise per session that you would like to achieve?

Commitment to fulfilling set goals is often elicited by writing a formal contract. Some people are more likely to change their behaviour and achieve their personal goals if they fill out a written form.

33. Do you think a written form filled out with me, might help you to attain your short-term goals for next week?

CONCLUSION

It is great that you are starting an exercise program. I am sure that you are going to be successful in reaching your goals. I am here to help you attain those goals and help you to plan to succeed.

If you have any questions or problems during the week I would like you to give me a call. My phone number is 434-4927.

Should you like to set up the next appointment with me?

SESSION TWO

WEEKLY ACTIVITIES

1. You have started your exercise program recently, how has it been going? Have you been enjoying your exercise participation?

2. What was your exercise participation for the past week?

3. What were some of the specific problems that you encountered in trying to achieve your exercise goals?

4. Did you overcome those problems?
   If yes, how did you overcome them?
   If no, can you think of how you could have overcome them?

5. Did you notice any gains or benefits due to your exercise participation in the last week? What were they?

It is too early in your program to see all of the benefits that you will receive from your activity program. However, you should always keep these long-term benefits in mind when trying to motivate yourself to exercise.

DAILY ACTIVITY LOGBOOK

6. Did you have any problems with the weekly recording of your exercise?

7. On those days that you did not exercise did you record why you missed exercising?

8. What were those reasons?

9. Did you notice any type of trend in the conditions when you missed your exercise session.

10. Can you think of any way that you can overcome this problem?

11. Are you satisfied with the amount of exercise that you completed this week?

SELF-EFFICACY TRAINING

12. When you succeed in completing your exercise program, what do you attribute your success to?

13. When you fail to exercise what types of things do you attribute your failure to?

It is important to take personal responsibility for succeeding in your exercise program. It is also important to think of your reasons for failure as often being related

to situational or external conditions which can be changed or planned around.

GOAL SETTING

Last week we talked about short-term goals and how they can be valuable when starting an exercise program.

14. Did you find that the short-term goals that you set last week helped you in sticking to your exercise plan?

15. Did you find that there were any problems with your short-term goals? Were the expectations unreasonable, and therefore unattainable?

There are both short-term goals and long-term goals:

Short-term goals are those which can be attained after a relatively short period of time, e.g., "I want to lose 2 pounds over the next two weeks".

Long-term goals are goals which are achieved over a long period of time, e.g., "I would like to lose 10 pounds over the next six months".

Short-term goals are usually used in combination with long-term goals. Systematic setting of short-term goals can assist you in achieving more far-reaching long-term goals.

16. Would you like to set some long-term goals?

17. Would you like to get these down in writing?

SELF REINFORCEMENT

When we were discussing your decision-balance sheet, in the categories labelled "Gains to self" and "Self-Approval" you listed several positive things which would result from your participation in an exercise program.

18. Do you use these positive thoughts to motivate yourself before exercise?

You can use this positive self-talk to convince yourself to exercise. Think about all of those benefits!

19. What types of thoughts would help to motivate you to exercise?

20. Do you have any negative thoughts prior to exercise?

You should try to block out negative self-talk such as "I am too tired..." or "I do not have enough time..." by focussing on the positive outcomes of exercise.

21. What types of thoughts do you have during exercise?

22. Is there any way you can make these thoughts more positive?

23. How do you feel following exercise -- what are your thoughts?

Self-talk before, during and following exercise can greatly influence your perception of exercise. By focussing your thoughts on those things that you enjoy your whole attitude towards exercise will be more positive. Or by focussing your thoughts on your goals you may be more motivated to exercise.

SESSION THREE

1. How has your exercise program been going?

2. What has your exercise participation been for the last week?

3. Did you miss any exercise sessions that you had prescheduled?

4. Did you note the reasons you missed in your logbook?

5. What were those reasons?

6. Did you encounter any problems in trying to achieve your exercise goals?

7. Did you overcome these problems?
   If yes, how did you overcome them?
   If no, can you think of how you could overcome them?

8. Are you satisfied with the amount of exercise that you completed last week?

There are times when an individual will miss some of their exercise sessions. The important thing to keep in mind is to try to get back in to it as soon as possible. A person's physical fitness level does not immediately revert back to pre-activity levels. Generally, a person loses their fitness level in a third of the total time they have been exercising.

9. Are you enjoying your physical activity program?

If you are not looking forward to your exercise sessions, you might want to question whether you are enjoying your chosen activities. It will be difficult to stick with a program if you are doing a particular activity because you think it is the best for you, but you don't really enjoy it. If this is the case, try to find an activity which will help you to achieve your physical activity goals and one which you will also enjoy. This may be one way in which to help you look forward to your exercise sessions.

SESSION FOUR

1. Have you been enjoying your exercise program so far?

2. What aspects of the counselling program have worked or not worked for you? (Go through the various program components individually).

3. What aspects of this program will you apply to your continuing exercise program. Why?

4. Do you feel that you have been accomplishing your short-term goals?

5. Do you feel that you are closer or have accomplished any of your long-term goals?

6. Now that the program is completed, have you done any planning to continue with your exercise program?

7. Do you need any assistance in devising a maintenance plan?

In the weeks to come if you have any problems or concerns, you can contact me at 434-4927.

YOUR PERSONAL FITNESS CONTRACT

Writing down your plan for becoming more fit can help you keep sight of your goals as well as re-affirm your commitment to becoming more physically fit. When you "see it in writing," and enlist the help of a friend or loved one, your fitness plan can become a reality. Here's a sample contract:

I, _____, have decided to improve my personal fitness level. To do this, I will:

- ☐ Do some form of aerobic exercise within THR for 20-30 minutes three days a week.
- ☐ Do stretching exercises for 10 minutes before and after my aerobic workout.
- ☐ Do strengthening resistance exercises for 15 minutes on the days when I'm not exercising aerobically.

In addition, I will try to walk more often, use the stairs whenever possible, and try to find more active recreations to enjoy during my leisure time.

My partner, _____, has agreed to help me by exercising with me ____ days a week and calling me on the other days to see how I'm doing.

SIGNED	WITNESSED BY MY PARTNER	DATE

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SELF-MONITORING

Self-monitoring in the form of your physical activity logbook can help to promote your adherence. By recording your weekly activity you become aware of how much and what type of exercise you are participating in. This self-recording can also help you to spot problem areas

which are barriers to your exercise. There may be certain conditions under which you tend to miss exercise, eg. business trips, weekends, etc.

1. Do you think it would be helpful to record the reasons you missed exercising on any particular days, in your weekly logbook?

This may be useful in noting any trends for those days in which you missed exercise.

2. You may also want to record weekly exercise frequency in the form of a graph. This way you would be able to visualize your weekly progress in your program. Would you be interested in graphing the frequency of your physical activity during each week?

The self-monitoring sheets are fairly self explanatory, however, under the column entitled "social context and location" please indicate whether you exercised alone or with how many others as well as where you exercised i.e., at home, at a fitness facility or some other location. Please remember that the physical activities which you name must be ones which you participate in for at least 20 minutes and are at some level within your target heart rate zone.

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APPENDIX C

PRE-TEST

POST-TEST

THE POST-PROGRAM EVALUATION

ACTIVITY QUESTIONNAIRE

1. Over the past 6 months how many times per week on the average have you engaged in activity of the following intensities for a minimum of 20 minutes?

   Light _____ times/wk Medium _____times/wk Heavy _____times/wk

   Please refer to the physical activity logbook sheets for the definitions of the varying intensities.

2. What has been your activity level for February 19 to 25, 1990?

	Activity (please name)	Intensity (L/Med/H)	Length of Time
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

For the following, please place a check where you would rate yourself according to the scale.

3. How would you rate your fitness level?
   Poor _ _ _ _ _ Excellent
   1 2 3 4 5

4. How satisfied are you with your fitness level?
   Not very satisfied _ _ _ _ _ Extremely satisfied
   1 2 3 4 5

5. How much do you enjoy the type of physical activities you are presently doing?
   Not very enjoyable _ _ _ _ _ Extremely enjoyable
   1 2 3 4 5

PRETEST FOR FITNESS ADHERENCE

1. What are the primary motivators for embarking on this fitness program. Please mark in descending order. "5" Being Most Important, "1" Being Least Important.

   ☐ To improve physical fitness

   ☐ To increase mental fitness

   ☐ To control weight

   ☐ To relieve stress

   ☐ To reduce chance of heart disease

2. How confident do you feel in being able to adhere to your fitness goals?

   a. During the length of this study.

5	4	3	2	1
Very Confident				Not Confident

   b. After the completion of this study.

5	4	3	2	1
Very Confident				Not Confident

3. How motivated are you to make improvements in your fitness regime?

5	4	3	2	1
Very Knowledgeable				Not At All

5. How close are you to achieving your goals in this area?

5	4	3	2	1
Very Close				Very Far Away

6. To what extent do you need to learn additional skills in this area?

5	4	3	2	1
Have All The Skills I Need				Have No Skills

7. How much support do you have for making improvements in this area?

5	4	3	2	1
Lots of People Support				People Against My Success

8. How urgent do you feel it is to improve in this area?

5	4	3	2	1
Very Urgent				Not Urgent

9. How many times in the last 2 years have you attempted to make changes in this area?

5	4	3	2	1

POST TEST FOR FITNESS ADHERENCE

1. How much weight have you lost since beginning the program?

   a. 1-4 pounds
   b. 5-9 pounds
   c. 10-14 pounds
   d. 15-19 pounds
   e. 20 pounds or more

2. Since beginning the program do you think you have paid more attention to good nutrition and to improving your dietary habits in the areas of:

   5 very significant — 4 significant — 3 somewhat — 2 very little — 1 no change

   a) eating more chicken or fish

   5 4 3 2 1

   b) eating more fruits and vegetables

   5 4 3 2 1

   c) eating more whole grain or bran cereals

   5 4 3 2 1

   d) avoiding foods high in saturated fa

   5 4 3 2 1

3. Do you feel that your exercise program has helped you feel more optimistic towards life?

   5 4 3 2 1

4. Since beginning your program do you feel you have more control over your life?

   5 4 3 2 1

5. Do you feel you have more energy since embarking on your exercise program?

   5 4 3 2 1

6. Have you experienced fewer colds since you have started your exercise program?

5 4 3 2 1

7. Has there been a difference in the number of work days you have missed since beginning your exercise program?

5	4	3	2	1
significantly less missed	less missed	no change	more missed	significantly more missed

8. How confident do you feel in being able to continue with your own exercise program?

5	4	3	2	1
very confident				not confident

9. What activity(ies) have you chosen to perform for your exercise program?

10. Have you enjoyed the activity(ies) you have chosen? Why or why not?

11. If you did not enjoy your program then please explain how you may have made it more enjoyable.

EVALUATION OF FITNESS ADHERENCE COUNSELLING

A. 1. How has your exercise program been going?

2. How often have you exercised, on the average, during the past month?

5	4	3	2	1
four or more times/wk.	three times week	twice/wk.	once/wk.	less than once/wk.

3. How often did you exercise on the average, during the past six months?

5	4	3	2	1
four or more times/wk.	three times week	twice/wk.	once/wk.	less than once/wk.

4. Has/will your exercise involvement change(d) with the coming of nice weather?

Yes _____ No _____

Explain:

5. What are your exercise plans for the summer?

Type:

Frequency:

5	4	3	2	1
four or more times/wk.	three times week	twice/wk.	once/wk.	less than once/wk.

B. Your Impressions of the Adherence Counselling Program

1. What did you think about the counselling program? Your reactions to it?

2. To what extent did you attempt to use the information from the counselling program in maintaining your regular activity involvement?

5	4	3	2	1
A Great Deal				Not At All

3. What was your reaction to the overall counselling program?

5	4	3	2	1
Very Positive				Very Negative

4. How beneficial was the program in increasing your knowledge (awareness) about exercise adherence (difficulties in being regularly active and how to plan for it)?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

5. How beneficial was the program to your maintaining regular involvement in physical activity?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

C. Reactions to Different Components of the Counselling Program

1. What was your reaction to monitoring your activity level/keeping a physical activity log book?

   a) How regularly did you keep an activity log book?

Didn't Keep At All	Kept Irregularly For A Short Time	Kept Regularly At Beginning
____	____	____
Kept Irregularly Throughout Study	Kept Regularly Throughout Study	
____	____	

   b) Did keeping a log book (monitoring your activity involvement) help you maintain your physical activity goals?

5	4	3	2	1
Very Helpful				Not At All Helpful

2. How useful was the information you received on the problem of adherence or dropping out?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

3. How useful was the information that you received on desirable exercise practices (frequency, intensity, duration)?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

4. How useful was it for you to discuss your personal exercise history/reasons for stopping exercise in the past?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

5. How useful was it to work through a decision balance-sheet pertaining to your decision to undertake an exercise program?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

6. How useful was it to have a graph of your exercise behavior (frequency, duration, intensity)?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

7. How useful was it to discuss and set some personal goals for your exercise program?

a) short-term goal

5	4	3	2	1
Very Beneficial				Not At All Beneficial

b) long-term goal

5	4	3	2	1
Very Beneficial				Not At All Beneficial

8. How useful was the information on social support?

   To what extent did you attempt to build a social support system to encourage your activity involvement? (Moral and/or tangible, discuss, reinforce, daily schedule, buddy, transportation). Describe:

   a) at home

   b) at work

   c) with friends

   How important was the social support component of the program to your activity participation?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

9. How valuable was the discussion of your previous week's experiences (problems; benefits; success in reaching short-term goals)?

   Comments:

5	4	3	2	1
Very Beneficial				Not At All Beneficial

10. How valuable was the attribution/self-confidence training (self-responsibility for program success) component?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

11. How valuable was the information dealing with how to develop regular exercise habits (regular time, location, warm-up, cues for exercise)?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

12. How valuable was the reinforcement practices information in assisting you adhere to your program?

5	4	3	2	1
Very Beneficial				Not At All Beneficial

13. Would you recommend the adherence counselling program to others who are undertaking an exercise program?

No _____ Yes _____

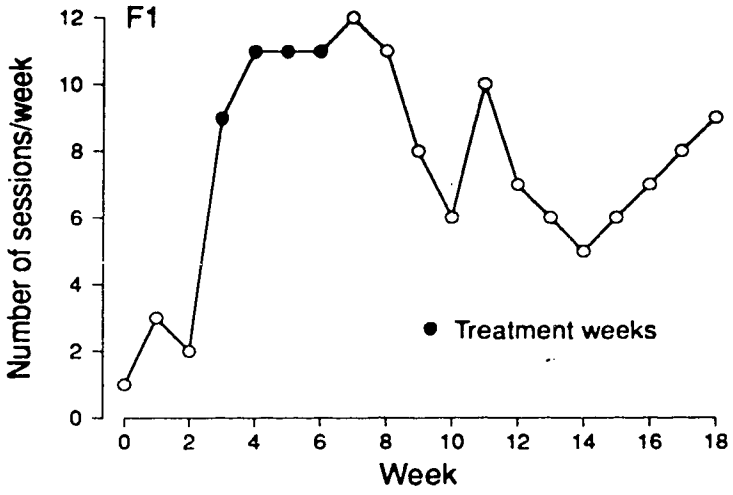
14. Do you continue to make use of some of the information gained from the counselling program?

Yes, regularly _____ Yes, Occasionally _____ No, Not At All _____

15. What recommendations would you make to improve the counselling program?

APPENDIX D

INDIVIDUAL SUBJECTS' GRAPHS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Week
Treatment weeks
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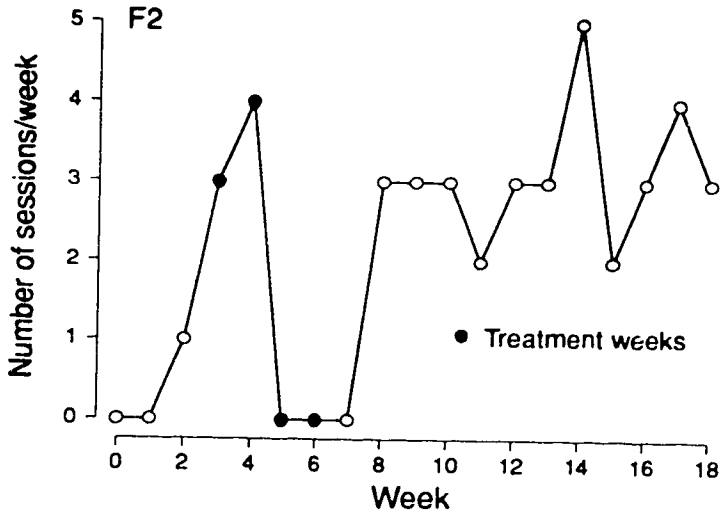
14
16
18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Treatment weeks
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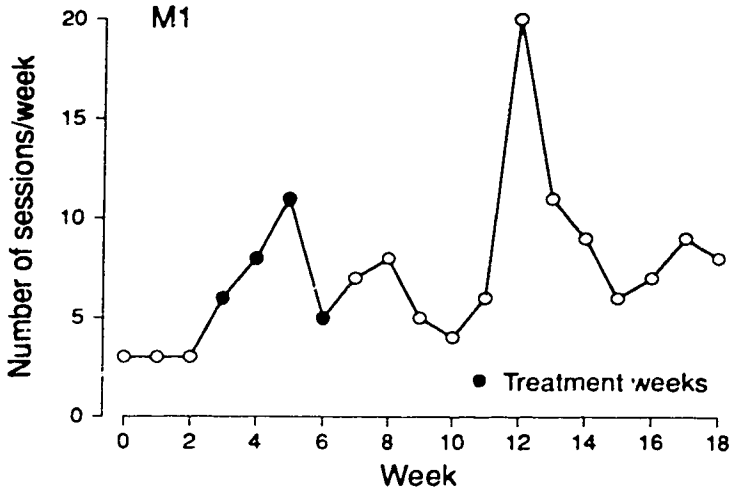
18
Week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Treatment weeks
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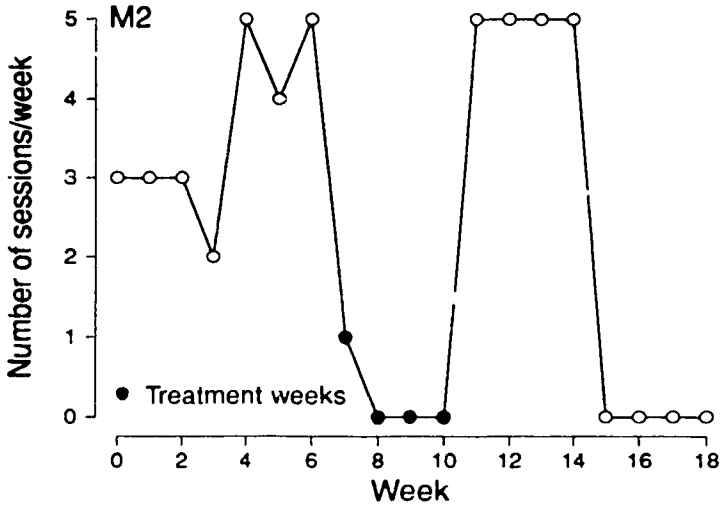
Week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Treatment weeks
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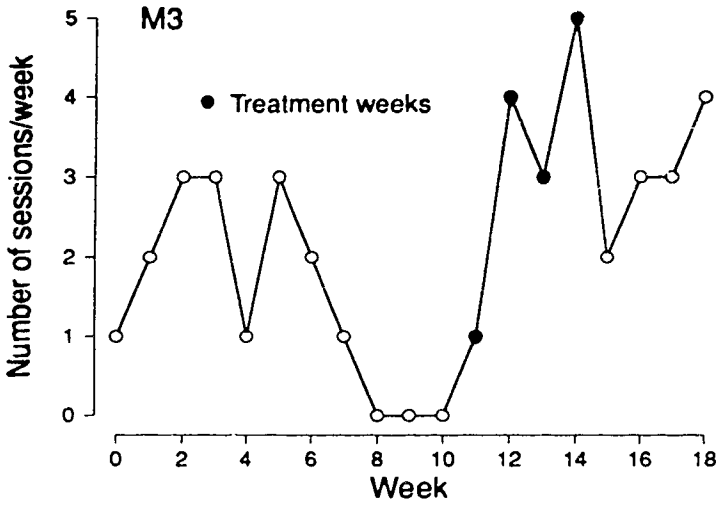
Week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Number of sessions/week
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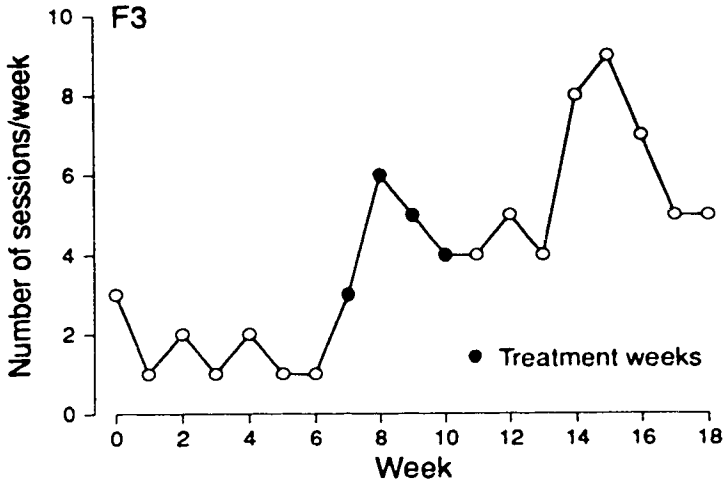
18
Week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16
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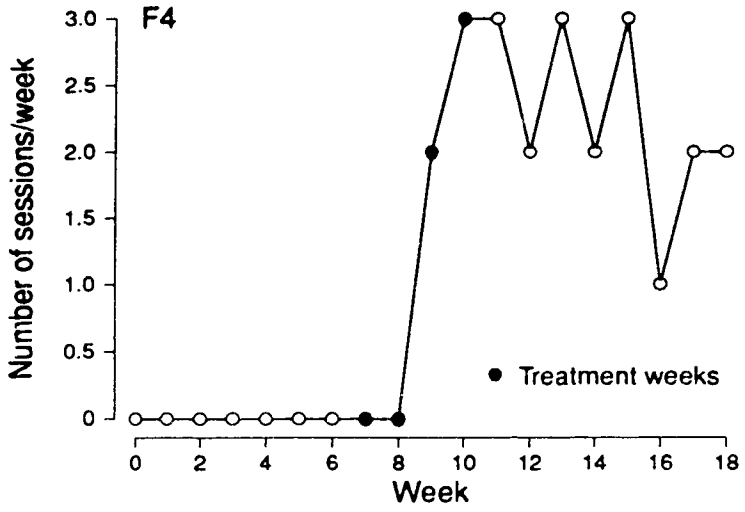
Week
Treatment weeks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Treatment weeks
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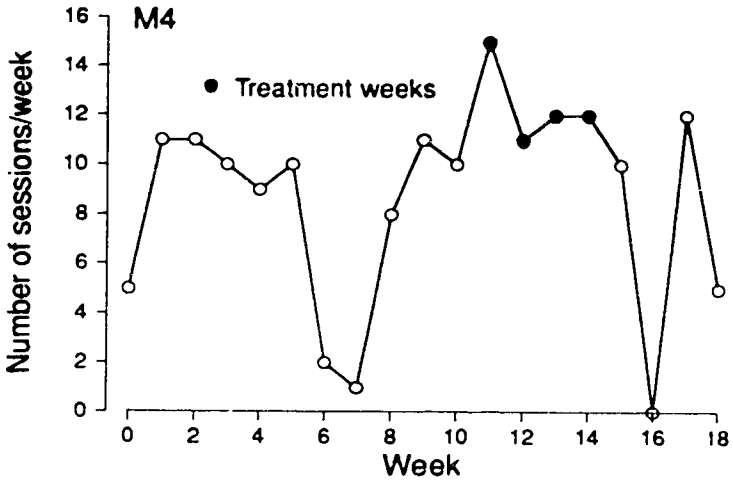
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Treatment weeks
Number of sessions/week
Week
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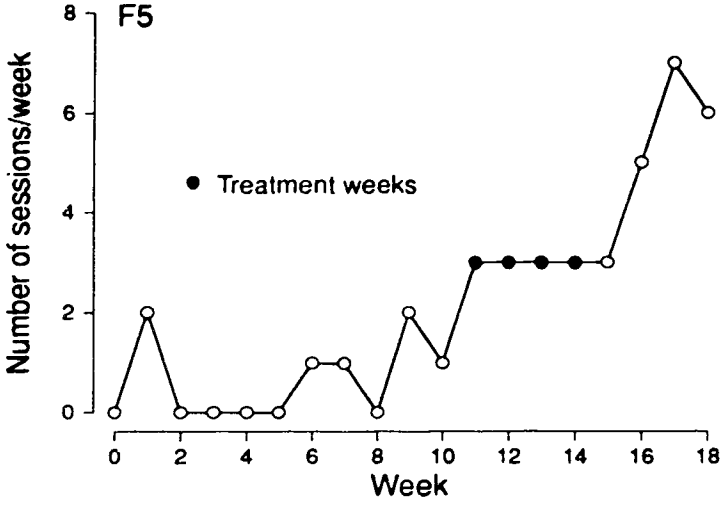
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Number of sessions/week
Treatment weeks
Week
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4
6
8
10
12
14
16
18

APPENDIX E

COUNSELLING NOTES

Subject F1

Subject F1 was a 44 year old married mother of three children. She held an instructor position on the NAIT faculty.

Exercise history

In her younger years she was quite physically active and then became less so. However, in more recent years she has done some running and a bit of swimming, as she has a pool at her residence. She tried swimming on campus but found she was getting colds more frequently. She has played some badminton and recently was enrolled in a walk-about aerobics class which she really enjoyed.

Reasons for initiating exercise

F1 volunteered to be a part of the study because she felt that as she was getting older she was becoming more concerned with the "fight against gravity". She was really interested in becoming better toned and losing weight and making this a life-long commitment.

Counselling notes

Goal-setting. The goals she found to be most helpful were those that were short-term. She set weekly goals involving the days she would exercise and then the type and time of exercise. This was found to be the most plausible approach for herself and one she could realistically achieve.

Decision-balance sheet. Did not fill one out.

Self-monitoring. She said that she did not find the logs to be of any extra benefit in helping her adhere to her fitness program. She felt that making mental notices weekly of her activities was sufficient in motivating her to continue with the next week's goals.

Attribution of success/failure. F1 attributed her successes to her commitment to

herself and to the program. Her only "failures" occurred when there were unexpected changes in her work schedule, for example, a meeting being called during the time of her exercise class.

Writing a contract. This aspect did not play a role in F1's progress.

Social support system. F1 originally felt that her family would be supportive of her efforts, however, she also felt that perhaps her husband might feel resentful if she was to be more successful than he in her fitness endeavors. She wanted a person outside of the family to provide some support as she felt they would not react as negatively to her failures as her family might. As the program progressed, she found that both her family and office colleagues became more interested in her activities and even provided support in the form of actively joining her on occasion.

Self-reinforcement. F1 found that self-talk and positive thoughts provided reinforcement. She also decided that as soon as she lost a set number of inches she would buy a new outfit or
swimsuit. However, she never did use this external reinforcement as she found that the self-talk and positive thoughts were sufficient.

Relapse prevention. She felt that the weekly planning would help her to avoid long periods of time without exercising as she would be able to plan specifically for each week. However, she felt confident that if she were to miss an exercise session she would be able to resume with her next scheduled one without any problem because she was trying to look at it as a life long commitment.

Progress of physical activity involvement

An increase in exercise involvement is noticeable at the same time as the counselling sessions start. More specifically, the number of sessions per week increases and is

maintained.

Subject F2

Subject F2 was a 45 year old married mother, who held an instructor position on the NAIT faculty.

Exercise history

Had recently engaged in such activities as yoga, squash horseback riding, and golf. Her favourite of these was golf, however, she also enjoyed yoga as she found it relaxing.

Reasons for initiating exercise

F2 wanted to be a part of the study because she wanted exercise to become a permanent facet of her lifestyle. She felt that she was getting mental health benefits through the yoga however, she felt she needed to incorporate cardiovascular exercise into her routine.

Counselling notes

Goal-setting. She set both short and long-term goals and found the short-term goals to be the most helpful in actual achievements. They were set on a weekly basis and were general in nature, that is, type of activities and number of sessions per week.

Decision-balance sheet. F2 found that there was more to be gained from her participating regularly in an exercise program than not. She also found that most of the reasons she had put down for not exercising had workable solutions.

Self-monitoring. She did find that the logbook was helpful in that she knew it was important for the program. It also aided her with her own exercise commitment. She also liked to plot her activity involvement on a graph which she said she would like to continue.

Attribution of success/failure. F2 tended to internalize both failures and successes.

Thus, she would take responsibility for any failures, however, she did also take into consideration the circumstances at that time.

Writing a contract. This aspect did not play a role in F2's progress.

Social support system. Her husband was already involved in a regular physical activity program and was supportive and encouraging in her efforts. She had also talked to another one of the participant's in the study and had received encouragement and ideas from that source as well.

Self-reinforcement. F2 generally tries to find something positive in every situation and she tried to apply this to her exercise sessions. She felt satisfaction in doing the exercise because it is something she had wanted to do for a long time. In addition she had planned to buy a new exercise outfit upon completion of her long-term goal.

Relapse prevention. She realized that sometimes situations occurred which interfered with her exercise plans. In those instances she was usually able to reschedule her activity session to the next day.

Progress of physical activity involvement. Both the number of exercise sessions per week as well as the number of minutes per session increased after the first counselling session which began during week number 3. However, during weeks 5-7, exercising ceased due to serious illness. Nonetheless, right after this time period her activity level increased right up until the end of the study.

Subject M1

Subject M1 was a 34 year old married male who held a teaching position on the NAIT faculty.

Exercise history. M1 feels that he has become more physically active in recent years, however, he would like a consistent program. The activities which he has tried include

bicycle touring, cross-country skiing, down-hill skiing, weight training, jogging, soccer, canoeing and kayaking, back-packing, and swimming.

Reasons for initiating exercise. Due to a back injury two years prior to the study he felt that he had not been very active. He wanted to become involved in a regular exercise program with the emphasis on his cardiovascular system. He had hoped to lose a few pounds and strengthen his body in order to prevent another back injury.

Counselling notes

Goal-setting. He found that setting short-term goals were important in helping him adhere to his exercise regimen. He was very specific in his weekly goals, that is, each day was scheduled with a particular activity and length of time for that activity.

Decision-balance sheet. M1 reported approximately an even number of anticipated gains and losses. However, he felt that there was a greater long-term value to those things in the positive column and that those in the negative column were short-term sacrifices which would essentially become inconsequential if he succeeded with his exercise program.

Self-monitoring. M1 found that the use of the exercise log assisted him in adhering to his program. He felt it was like a small reward to be able to fill in the sheet with an activity - accomplishment.

Attribution of success/failure. M1 tends to internalize his failures and then tries to justify them. If he feels that the failure is due to laziness then he is quite critical of himself. However, he does try to get over this as quickly as possible by looking at what has been accomplished and going on from there.

Writing a contract. This aspect did not play a role in M1's progress.

Social support system. Initially M1 was confident that his wife would be supportive

of his exercise endeavors and she was. Even though they usually were not able to exercise together she would offer words of encouragement. His exercise program even appeared to motivate her to work out also.

M1 has also received some support from a couple of co-workers who have also started exercising. However, there is also negative pressure from a number of co-workers who do not exercise and like to socialize over a beer. Thus, they often try to entice him to come along instead of working out after work.

Self-reinforcement. M1 wanted to make exercising a habit and therefore kept telling himself he had to stay with the program. He began to notice lifestyle changes which pleased him, such as his caffeine and alcohol consumption had decreased, and these things provided motivation for him to continue with his program. He also was looking forward to buying a new swimsuit or pair of biking shorts after he had lost a certain number of inches.

Relapse prevention. M1 did not seem to have any problems continuing with his program even if he missed a session.

Progress of physical activity involvement. M1 increased his exercise sessions per week over the course of the study. It appears somewhat sporadic over the weeks, however, he did increase the number of sessions above the baseline level and was able to maintain it above this initial level.

Subject M2

Subject M2 was a 45 year old married father of 5 children. He held an instructor position on the NAIT faculty.

Exercise history. M2 comes from a fairly sedentary family. However, he enjoys aerobics which he has been doing for the past 10 years. Occasionally does some biking

on family camping trips. Also has done some swimming, stationary biking, racquetball, tennis and hydragym. He dislikes jogging.

His problem has been to stay with any one, or a combination, of these activities on a regular basis. He finds that as long as the aerobic classes fits into his work schedule then he does not have a problem with attendance. He does have a problem making time for an exercise program outside of scheduled exercise classes.

Reasons for initiating exercise. M2 does not want to get old before he is actually old. He remembers his father at age 45 and thought of him as acting quite old. He just had a friend who died of a heart attack at 46 years of age. M2 feels he has some weight to lose and believes he can significantly decrease his chances of being in a wheel chair by being physically fit.

He also knows how physically and mentally fit he feels when he is exercising on a regular basis. He would like to feel this way all the time.

Counselling notes.

Goal-setting. M2 felt that he needed to get very specific with the activities and the times of the goals he set. He also felt that perhaps his goals had been unrealistic, that is, only aim for three days per week instead of any more than that.

Decision-balance sheet. Did not fill one out.

Self-monitoring. He was going to hang up the exercise log sheets around the house as a reminder to himself to exercise, however, he found that it really was not that helpful for him to fill out the sheets. He noticed that it was always the same types of activities at the same times. He found this discouraging because he found he could not make time for exercise unless it was during these recorded times. This reminded him of how inconsistent his exercise program was.

Attribution of success/failure. He tends to internalize his failures. However, he is also aware that occasionally situations occur which prohibit him from doing what he had originally

planned.

Writing a contract. This aspect did not play a role in M2's progress.

Social support system. His family is supportive of his exercise endeavors. Although he and his wife are usually not able to exercise together she will inquire whether he has exercised or not. On occasion she has even initiated some exercise time together. His children also often ask whether he has worked out or not that day. One of the other subjects in the study has provided support by phoning on occasion to inquire about his progress with the program.

Self-reinforcement. He tries to use positive thoughts to keep himself on track. If he has negative thoughts then he keeps in mind that he still has weight to lose and remembers how awful he felt when he was even heavier and how good he felt when he was in better condition. He also tries to keep in mind the sense of accomplishment he experiences when he has completed an exercise session.

Relapse prevention. This has been a difficult area for M2. He does not have a problem adhering to his exercise program when the aerobic classes fit into his work schedule. However, as soon as his work schedule changes he no longer is able to adhere to any sort of regular exercise program. He hopes that perhaps he can utilize his social support to assist him in adhering to a regular program.

Progress of physical activity involvement. M2 was able to maintain a minimum of three exercise sessions per week when the aerobic class schedule coincided with his work schedule. When his work schedule changes then his workouts became nonexistent.

Subject F3

Subject F3 was a 43 year old married mother of two children. She held an instructor position on the NAIT faculty.

Exercise history. Over the past few years she has been sporadically involved with aerobics and the hydragym. She had tried jogging but found that it irritated her lower back and her doctor suggested she try to find alternate activities. She does not enjoy water activities, however, she does really enjoy walking and would like to try weight lifting and cycling.

F3 found that if activities were scheduled then she was more likely to stick with them. For example, she never missed her curling sessions which were every Monday.

Reasons for initiating exercise. F3 realizes that although she is thin this does not mean she is physically fit. She also sees the physical activity as a balance to the mental workouts she does during the work day. She would also like her muscles to have better tone and feels that exercising might help her quit smoking.

Counselling notes.

Goal-setting. She often sets goals for herself involving objectives and time frames and finds that this often works for her, however she had never applied this to physical activity. She found that it made her more realistic in her exercise choices and goals.

Decision-balance sheet. She did not fill one out.

Self-monitoring. She found that recording her activities in the log helped her realize what she had actually accomplished. She also graphed some of the weeks of her activities and found it interesting. She does not think that she will continue using the log or graph on any long-term basis.

Attribution of success/failure. Generally, F3 internalizes her successes and failures.

She usually feels that if she does not accomplish something it is due to a lack of effort. If she is successful with her efforts then she feels this is due to her setting realistic and achievable goals.

Writing a contract. This aspect did not play a role in F3's progress.

Social support system. F3 found that her whole family was very supportive of her exercise program. Her husband never said no if she asked him to do some sort of physical activity with her such as walking or biking. She even jogged with her daughter (who had lost 8 lbs. during the program) a number of times. They also engaged in various activities as a family such as biking.

Self-reinforcement. F3 uses self-talk. She tries to keep in mind that she is doing this to be healthier. She tries to concentrate on the activity with which she is involved, for example, if she is skiing she keeps telling herself how nice it is to be in the fresh air. She also enjoyed the positive tired feeling she experienced after a workout. When she started to see the changes in her body and mental outlook due to her exercise program, she found this to be motivating.

Relapse prevention. F3 felt that if she found that she was not adhering to her program then this meant that her goals may be unrealistic at that time and a reassessment would be necessary.

Progress of physical activity involvement. F3's exercise sessions per week increased above that of the baseline level and she was able to maintain her sessions at three or more per week. She did not have any problems during the course of the study adhering to her program even though she had pinched a nerve in her neck which proved to be a little painful for about a week.

Subject F4

Subject F4 was a 32 year old married mother of a newborn. She held an instructor position on the NAIT faculty.

Exercise history. As a youth she was overweight and did not enjoy any type of physical activity. It was just recently that she began to walk, jog and cycle. She started jogging in order to lose weight and found that it fit well into her work schedule because she could do it on her own. When she became pregnant she had severe morning sickness which hampered her exercise efforts. Since having had the baby she has found it more difficult to schedule regular exercise into her day and found that recent workouts were extremely tiresome.

Reasons for initiating exercise. She would like to lose some weight as she had gained some fat during her pregnancy, and also to add some muscle tone to her muscles. She knows that she feels better about herself and has more energy when she is on a regular exercise program. Thus, she would like to make exercise a regular part of her lifestyle.

Counselling notes.

Goal-setting. She believed that it took thirty days to make something a habit and so felt that if she could adhere to her exercise program for a month then it would be a habit. However, she found that a lot more planning was required with the new baby and she could no longer exercise whenever she wanted. F4 had difficulty making her goals more realistic, that is, to focus initially on a walking and then on a running program.

Decision-balance sheet. She felt that some of the positive aspects of beginning an exercise program would be the approval she would receive from herself and from her friends. She has a number of friends that are runners and knows that they would

approve of her beginning a running program.

The negative aspects of beginning an exercise program included the self disapproval she knew she would experience when she missed an exercise session.

Self-monitoring. F4 felt that the monitoring of her exercise program using the log sheets was extra paper work for which she really did not have time. She felt the fitness appraisals would be more helpful in providing the motivation to begin and continue with her program.

Attribution of success/failure. F4 tended to internalize her successes and failures. She felt that her failures in this particular program were largely due to not being in the right "mind set", that is, she knew she had a number of other responsibilities and exercise, although important, was not at the top of her priority list. She also realized that some of her failures were due to the added responsibilities of having a child and certain situations occurred which were beyond her control.

Writing a contract. This aspect did not play a role in F4's progress.

Social support system. Her husband is her main social support. They used to work out together, however, this would now require hiring a babysitter. She also had a neighbour with whom she had agreed to go walking. Initially, she felt that this would suffice, however, at the end of the study she had expressed that a more formalized buddy or support system may have helped her adhere to her program more readily.

Self-reinforcement. She found that in the past, if she set a goal and achieved it then she could reward herself with something like a new pair of running tights or running shoes. She also tried to remember how good she felt about herself when she was working out.

Relapse prevention. This turned out to be a difficult area for F4. If she missed a

session of exercise then she found it difficult to get back on her program.

Progress of physical activity involvement. Once her counselling program began she was able to maintain between 1-3 exercise sessions per week.

Subject M3

Subject M3 was a 44 year old married male. He held an instructor position on the NAIT faculty.

Exercise history. He used to swim a couple times a week until about a month before the study. He caught a cold and was not able to get back into an exercise program. He enjoys swimming and goes scuba diving about once a year. He has lower back problems, which jogging aggravates, however, he does some back exercises, sit-ups and some stretching. Occasionally, he and his wife play tennis. He also used to downhill ski but has not done so in many years.

Reasons for initiating exercise. M3 had a number of reasons for wanting to begin a fitness program. These included wanting to lose some weight as he felt he had gained a few pounds in the last few years. He also found that exercise was a stress reliever and helped improve his self esteem. He also wanted to improve his cardiovascular system as he had recently been feeling short of breath. This bothered him as he enjoyed scuba diving and felt this might impair his ability. He also has a one year old son who he wants to be able to keep up with.

Counselling notes.

Goal-setting. M3 found that he needed to be very specific with his goal-setting. He set up day-by-day schedules of times and activities and tried to be as realistic as possible.

Decision-balance sheet. A number of the positive aspects of embarking on a fitness program, for M3, included feeling fit and healthy; losing weight and having improved self

confidence; having a better attitude which in turn would enhance some of his relationships. On the negative side he felt that perhaps he would have less time for other things and he might get frustrated with himself if he ended up procrastinating beginning exercising.

Self-monitoring. He felt that the log book was a good reinforcement because he had to write down his activities and in turn he could look back at them.

Attribution of success/failure. M3 would attribute his positive gains from a physical activity program to himself and give himself a "pat on the back". He would also get disappointed with himself if he did not accomplish what he wanted to, however, he would tell himself that there is always next time and go on from there.

Writing a contract. This aspect did not play a role in M3's progress.

Social support system. His wife was his main form of social support. She enjoys swimming, jogging and a number of other activities and provided encouragement to her husband. His co-workers provided a little support as they would comment if they noticed such things as M3 losing weight.

Self-reinforcement. He feels as if he needs to be pushed all the time. He does not feel that he actually verbalizes what keeps him going, that is, does not engage in self-talk. He feels that once he sees some sort of result then it is much easier to keep himself motivated. However, he did feel the need to work on breaking the habit of rewarding himself materially for successes with things such as food.

Relapse prevention. He felt that he was an optimistic individual who did not completely internalize his failures. He felt this would help him to realize that if lapses occurred he would just have to start back into his program as soon as he could.

Progress of physical activity. M3's activity levels varied, that is, due to a serious cold

he did not exercise for a couple of weeks. However, after this time and during the counselling sessions his activity levels increased and continued to do so to the end of the study.

Subject M4

Subject M4 was a 40 year old married male. He held an instructor position on the NAIT faculty.

Exercise history. M4 really enjoys cycling and cycles to and from work every day regardless of the weather. He used to jog but got sick and did not resume his program. Also, he used to do hydragym but did not continue once the session was over. He also enjoys racquet sports, cross-country skiing, skating and playing hockey.

Reasons for initiating exercise. Even though he cycles to work most every day, he would like to be more active so as to lose weight and then maintain that weight loss. He would also like to stay fit as he suffers from back problems and would like to manage it better.

Counselling notes.

Goal-setting. M4 had set both short and long-term goals. His short-term goals were not too specific, that is, he basically had an idea of what activities he wanted to do and the durations. However, he did not pick out specific days and times.

Decision-balance sheet. He would definitely think of more positive than negative reasons to exercise was his response.

Self-monitoring. He did use the logs, however, he did not feel that they provided a lot of extra motivation.

Attribution of success/failure. He felt that he both internalized and externalized the results of situations. If he accomplished something then he would generally give himself

credit for it. If he did not accomplish something then he would try to discern if it was due to himself or was it truly external factors that prevented him from accomplishing his goal.

Writing a contract. This aspect did not play a role in M4's progress.

Social support system. M4 had a network of social support. His family cycles together and his daughter has taken up running. He and his wife have tried activities together such as Tai Chi. His family enjoys physical activity and supports his efforts.

There are a number of people at work who run, including his boss. There were also a number of individuals at his office who cycled and they would all do that together on occasion. He felt that NAIT, on the whole, was quite approving and supportive of physical activity for its employees.

Self-reinforcement. He finds the whole experience of being physically active as enjoyable and that in itself provides a great deal of motivation. He thinks he may use self-talk but never really thought of it in those terms.

Relapse prevention. M4 feels that being physically active is so enjoyable to him that he could not give it up for any length of time. However, when his activity level does decrease he feels he will have to look at the reasons why. If it is due to an external factor then he feels like he will be able to resume previous levels of activity once the situation is over. If it is due to internal factors then he feels that he will have to remind himself of how positive he felt when he was physically active.

Progress of physical activity involvement. Activity levels for M4 were varied. Once he found out he was in the study his activity level increased above that of pre-study levels.

However, there were two periods of very low physical activity prior and following the

treatment sessions. These were due to personal illness and serious spousal illness. Activity levels did increase after these periods ended.

Subject F5

Subject F5 was a 43 year old married mother. She held an instructor position on the NAIT faculty.

Exercise history. She used to do a lot of walking years ago as that was her main mode of transportation. She still enjoys walking as well as weight lifting, running, tennis, cross-country skiing and yoga. She also enjoys swimming but does not feel very competent at it and so would like to improve her stroke technique. She has tried, but does not enjoy, aerobics or hydragym. She felt that the instructors in the aerobic classes she had attended were catering to the younger audience and she felt that she had to be competitive with the other participants to fit in with the class.

Reasons for initiating exercise. She wanted to feel healthier and be able to do the activities she enjoyed doing for as long as possible with a fit body. F5 felt that it made her feel younger and more relaxed. She also enjoys eating and was able to eat, in her estimation, what was reasonable amount while she was exercising. In addition, F5 wanted to be in good physical condition so as to take part in an Outward Bound program.

Counselling notes.

Goal-setting. She found that setting short-term goals was helpful. She was fairly specific as she would map out the activity, duration and location for each week.

Decision-balance sheet. Even though she had many positive outcomes of exercise listed, there were a few negative ones which she felt could really prove to be deterrents to her exercise program.. Under the "Losses to Self" column she felt that it would be

hard to spare the time for exercise because even though she enjoyed it there were a number of other activities that often rated higher on her priority list.

Under the "Disapproval from Others" column she often did not feel comfortable in various exercise settings because she felt that there was not an area that catered to the 35 to 50 year olds. In her opinion, organized exercise classes, such as aerobics, tended to cater to the younger population. In addition, while jogging, she felt that sometimes people made rude comments about older individuals exercising.

Self-monitoring. She found recording her activities in the logbook quite helpful as she generally likes to make lists of things. She felt guilty if she had not recorded anything on a consistent basis.

Attribution of success/failure. She tended to internalize her successes and failures, however, it was usually balanced with whatever external factors were involved. She knew she was ultimately responsible but realized that sometimes things were beyond her control or else she just had other priorities at the time.

Writing a contract. This aspect did not play a role in F5's progress.

Social support system. F5 and her husband would occasionally do physical activities together. Generally, she had a tough time finding individuals who would do some form of exercise with her and she felt that she practically had to beg them to exercise with her. She found this to be a bit of a deterrent at times.

Self-reinforcement. She uses self-talk on a regular basis in many areas of her life including exercise. She enjoys exercising and knows how well she feels when she is fit and so tries to keep this in mind when she feels like missing her exercise sessions. She also uses cuing, that is, she always has her exercise bag nearby so that she is reminded throughout the day of the need to exercise.

Relapse prevention. She knew that if she started missing exercise sessions she would have to remind herself how good it felt to be active and get back into her program. If she missed activity sessions due to other priorities, then she felt that once those other demands had ceased she would not have much of a problem commencing her exercise sessions once again.

Progress of physical activity involvement. During the pretreatment weeks her exercise sessions ranged from 0 to 2 per week. She then maintained it at a consistent three sessions per week during the treatment weeks. The sessions per week then increased during the post-treatment weeks.