

REASONS FOR RUNNING: AN INVESTIGATION OF
INTENTIONAL CHANGE IN EXERCISE BEHAVIOUR

by

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ABSTRACT

Running has become the sport of the 1980s. Men and women of all ages are regularly seen running throughout the community. The recent Canada Fitness Survey (1983) indicated that jogging is the first choice of activities which people wish to begin.

Most adults who begin running programs take responsibility for the selection, planning, and implementing of personalized exercise programs which represent an important change in their lives. Instead of participating in formal running programs under the supervision of a running or fitness instructor, these individuals engage in self-directed learning experiences to attain knowledge and skills relevant to running. The purpose of the study was to investigate the reasons why adults, at a particular time in their lives, decided to begin to run. Tough's (1982) concept of intentional change and a lifespan developmental perspective provided a theoretical framework. Rather than regarding adulthood as a period of stability or decline, this perspective emphasizes the potential for growth and self-improvement. Inherent in this approach, is the view that adult lives are characterized by transitions defined by life events. In addition to a consideration of life events and environmental influences, relationships between sex and age and reasons for beginning to run were also investigated.

Three instruments were developed. The Initial Reasons For Running Scale identified a wide range of reasons for beginning to run and the relative importance of each to the individual. The Life Event Scale identified events experienced by adults and the relative effect of each.

The External Influence Scale identified seventeen environmental factors which may have influenced a man or woman to begin running.

The 205 subjects were selected while running in various locations throughout the Greater Vancouver area. All data was collected on a self-administered questionnaire. Data from the IRFRS was factor analyzed. Orthogonal rotation yielded six factors--SOLITUDE, PERSONAL CHALLENGE, SOCIALIZATION, PREVENTION, REMEDIAL, and HEALTH. Orthogonal rotation of data from the EIS yielded four factors--MODEL, MEDIA, MOVIE, and PARTICIPATION.

An analysis of variance was performed to help explain the variance between the interaction of sex and age with IRFRS scores. This two-way analysis indicated interesting differences in IRFRS factor scores among men and women of different age groups. In several instances, important distinctions appeared between total populations of males and females and specific sex-cohort groups.

Results of bivariate and multivariate analyses indicated that sex and age were not as useful in predicting motives for beginning to run as were variables concerned with life events and external influences. However, men were more likely than women to be motivated by PERSONAL CHALLENGE, PREVENTION, and REMEDIAL. In terms of age, younger adults were more likely than older adults to begin running for PERSONAL CHALLENGE and less likely to begin running for PREVENTION.

A series of regression equations were performed to help explain variance in IRFRS factor scores. The most significant variables, the only ones which met the criterion for entry in all regression equations, were those concerned with specific life events. The experience of Health events was especially important.

Although statistical significance was found between certain variables and IRFRS factors, most variance in motives for running was unexplained. But of the variance that was explained it was clear that life events were more influential predictors of reasons for beginning running than age or sex, considered separately or together. This study represents a beginning step in the explanation and prediction of reasons why adults begin exercise programs.

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CHAPTER ONE

INTRODUCTION

During the past 50 years, research in adult education has contributed to theory focusing on: (1) adults as learners; (2) participation; (3) program planning and administration; (4) the impact of society and lifelong learning; and (5) self-directed learning. Moreover, students and professionals from a wide spectrum in medicine, the social services, in government, and education can benefit from what adult educators have learned about the study of adults.

Historically, a central role of adult education has been to assist people assume control over undesirable aspects of their lives. Participation in educational programs to promote social and political reform was a means by which individuals could collectively change their situation. The Antigonish movement in Canada was a dramatic example. Participatory learning occurred primarily in response to unacceptable political or psychological situations in which people found themselves. Adult education helped bridge the gap between the present deficit status of an individual or community and the desired status.

Improved social and political conditions in North America during the past twenty years brought a new dimension to adult education. Self-control and self-improvement became important issues and goals for an increasing number of people. The focus of this orientation was the role of individuals in creating their own conditions and guidelines for self-improvement. Self-control was regarded as a process through which individuals became the principal agents in guiding, directing, and

regulating behaviour that might eventually lead to desired positive consequences. Goldfriend and Merbaum emphasized:

A prerequisite of self-control is that it is the individual himself who determines his own special goal or outcome to be achieved. That is not to say that he may be uninfluenced to adapt a particular goal. In the final analysis, however, the choice remains an individual matter. . . . We view self-control as a functionally defined concept. That is, whether or not one has demonstrated self-control is determined not so much upon procedures employed as it is on the consequences of the action taken. (1973, p. 13)

Mahoney and Thoresen (1974) suggested that the traditional interpretation of self-control as willpower did not contribute to an understanding of intentional behavioural change. They stressed that self-control was a learned behaviour which was integrally related to environmental considerations. An individual's ability to change behaviour is dependent on knowledge of and control over significant person-environment relationships. Self-control skills are those enhanced by one's ability to identify factors that influence behaviour.

Self-control is an important component of lifelong learning. According to Gross (1977), lifelong learning implies self-directed growth. By acquiring new skills and knowledge, individuals invest in their occupation or personal future. Often referred to as the adult's "second education," lifelong learning has no prescribed curriculum. He stated:

The worth to you of any particular subject or field is for you to decide on your own terms. Virtually, every aspect of your life--work, leisure, personal relationships, community activities--has the latent power to enhance your "second education" if you can find or create the ways to learn it. (p. 18)

For many adults, lifelong learning has involved efforts to promote personal growth and the realization of one's potential. Some undertook self-directed learning projects in order to integrate body and mind.

Significant changes in one's behaviour and lifestyle were characteristic of efforts to realize personal goals. Tough's (1983) analysis of the intentional changes that adults achieve through self-directed learning projects, provides crucial information for research into adult behavioural change. Tough (1971) regarded the adult as a self-directed organism capable of achieving far-reaching cognitive, social, psychological, and physical changes. He emphasized that adults, in their attempts to gain knowledge or skills, conduct projects in which they plan and manage their own learning experiences. He indicated that in advanced nations, as lower order needs are satisfied, adults strive for new goals through continued learning experiences. A central theme in the present study is self-directed change in adult exercise behaviour. The focus of the investigation is on why adults initiate changes.

During the past decade millions of adults have become aware of and interested in physical fitness. A steady increase in the number of men and women participating in various forms of recreational exercise during leisure time has been observed. One of the most conspicuous areas of exercise involvement is running. The type of participation ranges from the casual weekend jogger to the highly trained and competitive marathon runner. Estimates concerning the number of recreational runners in North America have grown from two million in 1970 to thirty million in 1979 (Clement & Taunton, 1980). In Canada, running is a significant component of the fitness explosion which involves some seven million people. Recent findings from the Canada Fitness Survey (1983) indicated a general trend among the adult population toward "fitness" activities rather than sports. Perhaps the most significant finding of the survey

was that women were as likely to "exercise" as were men. On previous surveys men had outnumbered women. Girls and women, at least up to age 60, were now as physically active during their leisure hours as boys and men. With both sexes, jogging was identified as the first choice of activities which people wish to begin.

Many factors have contributed to the dramatic increase in adult running. The advancement from an agricultural to an industrial computer-based society has been accompanied by sedentary forms of employment. Describing sociological factors related to the growth in running, Clement and Taunton (1980) stated: "As automation and computer dominance advance, the need for physical expression by the individual will increase. Recreational outlets for this appetite are likely to continue growing in importance."

In 1971, Participaction, a private non-profit organization, was incorporated to employ marketing methods to promote fitness. Popular publications such as Cooper's Aerobics had an enormous impact. This book described health problems related to a sedentary lifestyle and provided information and guidance for recommended programs of activity such as running.

According to Naisbitt (1984), running became a mass movement as a result of an approach which emphasized a shift from institutional help (the medical establishment) to self-help (personal responsibility for health). Three major trends characterized this new emphasis on the individual:

- (1) New habits that actualize our newfound responsibility for health;
- (2) Self-care that illustrates our self-reliance in areas not genuinely requiring professional help; and
- (3) the triumph of the new paradigm of wellness, preventive medicine, and wholistic care over the old model of

illness, drugs, surgery, and treating symptoms rather than the whole person. (p. 147)

Several disciplines have investigated the relationships between individual behaviour and lifestyle and health outcomes. Health promotion and the prevention of illness have received much attention from the behavioural sciences and health education. More and more adults are being encouraged to assume responsibility for their health and to live in a "healthy" manner. This approach partially reflects changes in value structures that have encouraged self-realization and well being. Dwore and Matarazzo (1981) suggested that recent popular literature such as Pulling Your Own Strings, Looking Out For Number One, and I'm O.K., You're O.K. has assisted individuals to assert their rights and assume responsibility for certain decisions regarding health, nutrition, physical fitness, and participation sports.

Government recognition of the cost effectiveness of the preventive approach toward health problems was highlighted in Lalonde's (1974) A New Perspective on the Health of Canadians--A Working Document and Healthy People: The U.S. Surgeon General's Report on Health Promotion and Disease Prevention (1979). The former identified behavioural or lifestyle changes as one of four strategies for improving the health of Canadians. The U.S. report recommended a strategy for reducing environmental and occupational hazards and encouraged individuals to practice health oriented behaviours.

The non-medical aspects of health and exercise have attracted much attention from the behavioural sciences and health education. Green (1979) defined health education as any combination of learning opportunities designed to facilitate voluntary adaptations of behaviour conducive to health. Health education was considered to be a process

which helps people maintain or change their lifestyles in health enhancing directions.

A major emphasis in health education literature concerns the voluntary participation of the individual in health-promoting activities. Green, et al., (1980) suggested that the durability of health-related cognitive and behavioural changes is proportional to the degree of active rather than passive participation of the learner.

Two prominent approaches to health education and health behaviour change are the Health Belief Model and the PRECEDE model. The Health Belief Model has been used by several researchers (Hochbaum 1959, Rosenstock 1966, Becker 1977) in attempts to explain and predict health-related behaviour in terms of specific belief patterns. Proponents of health behaviour change identified the following sequence of events necessary for behaviour change to occur:

- (1) The person must believe that his or her health is in jeopardy.
- (2) The person must perceive the potential seriousness of the condition in terms of pain or discomfort, time lost from work, economic difficulties, and so forth.
- (3) On assessing the circumstances, the person must believe that benefits stemming from the healthy behavior outweigh the costs and are indeed possible and within his or her grasp.
- (4) There must be a "cue to action" or a predisposing force that makes the person feel the need to take action.
(Green et al., 1980, p. 73)

The PRECEDE model (Green, 1974) proposed that in addition to predisposing perceptions, "enabling" factors in the environment will influence the occurrence of prescribed health or exercise behaviour. This model recognized the complexity of behaviour change and emphasized a diagnostic approach employing theory and techniques from four fields of study: social/behavioural science, education, epidemiology, and administration. Kolbe et al. (1981) stated that when the Health Belief

Model and the PRECEDE model are used to design and evaluate health education programs, the dependent variable of analysis is the occurrence of a specified health behaviour.

The Health Belief Model and PRECEDE have been designed to represent our understandings about the nature of, and relationships among, independent variables that influence health behaviors. The ultimate function of these paradigms is to describe how the component independent variables can be influenced to increase the probability that a given behavior will occur (or not occur as the case may be). (1981)

Realizing the complexity of factors between a health decision (such as to exercise regularly) and its implementation, Kolbe and associates (1981) suggested that health education alone was not sufficient to bring about behavioural change. They proposed that this broader task was the function of health promotion. They considered health promotion as any combination of health education and related organizational, political and economic intervention designed to facilitate behavioural and environmental adaptations that will improve or protect health.

Physical education and fitness researchers have utilized components of social learning theory in investigations of sport participation and fitness promotion (Martens 1975, Yiannakis et al. 1979, Lauzon & Kier 1981, Parcel & Baranowski 1981, Godin & Shephard 1983). This theory views exercise behaviour in terms of a continuous interaction among cognitive, behavioural and environmental determinants. Parcel and Baranowski (1981) emphasized that health or exercise promoters cannot simply tell people what tasks they have to perform (knowledge provision),

but must also provide opportunities to observe (social modelling) and practice (skills training) performing specific complex tasks ... to promote the person's behavioral capability to perform these tasks. Behavior modification should be promoted in small steps to promote the person's perceived self-efficacy at changing behavior. Appropriate

expectations and expectancies must be clarified for learners so that they will not be diverted from achieving a change.
(p. 18)

Recent attention has been focused on the role of preventive medicine in promoting new perceptions of lifestyle and health behaviours. Allen (1978) emphasized that health and exercise practices are partially determined by the cultures to which adults belong and that individuals can and will change the groups to which they are affiliated when given an opportunity and assistance. He suggested that adults would replace groups considered as inadequate or unsuitable with groups which encouraged positive health and exercise practices. Allen contended that there are hundreds of different activities to promote health, but if health promotion is to become more than a passing fad, it must become the norm for adults to support positive health practices.

A significant change in society's perception of exercise has also occurred as a result of commercial advertisements. Young (1979) stated that the positive social image of being fit is supported by some \$25 billion per year in North America for advertising, marketing and public relations by industry where physical activity is featured as being healthy. This trend to use images in promoting fitness is stirring the population out of armchairs, converting the passive spectator into the active participant.

Recent expanded investigation of health and exercise behaviour from both the behavioural sciences and health education has generated information which has fostered a greater understanding of adult health behaviour. Recognizing that no one discipline has an exclusive right to investigate the factors and processes involved in human behaviour and

health promotion, Dwore and Matarazzo (1981) called for a greater collaboration between fields involved in the study of health behaviour.

Greater collaboration allows each field to preserve identity while stimulating cross fertilization of ideas among teachers, researchers and practitioners... The combined expertise brought to bear on a problem viewed as a system of components would easily surpass the capability of any single specialty.
(p. 7)

This study was concerned with only one aspect of exercise behaviour--why adults start a running program. It employed an adult education concept--self-directed learning, and a lifespan developmental perspective as a conceptual framework. A central theme of the study was the capacity for behavioural change and self-growth during adulthood. Because the study focused on the adult as a self-directed learner who assumed responsibility for planning and implementing a personalized exercise program (as opposed to participating in an exercise program under the instruction or supervision of an external agent or instructor), Tough's (1982) notion of intentional change was selected as the most appropriate theoretical foundation for the investigation.

Although much has been written about the physiological and psychological benefits of running, little is known about its behavioural antecedents. Numerous authors have described adult runners. However, there have been few investigations into why adult runners initiated running programs.

Physiological and psychological arguments supporting the role of regular physical activity have become well established. In order to increase understanding of exercise behaviour and eventually predict which adults are more likely to participate than others, it is essential to consider factors which occur prior to beginning regular physical

activity. It was anticipated that personal "characteristics" and "events" were related to reasons for beginning to run.

The purpose of this study was to explain why adults initiate a regular running program. Because most adult runners plan and implement their own programs, Tough's (1971) concept of the adult as a self-directed learner was employed to define "running program." A recent evaluation of the impact of Participaction on the adult population provided support for this concept. Kier and Lauzon (1980) indicated that contrary to popular belief in sport and fitness circles, not everyone who takes up physical activity wants to be managed. They reported that over 75 percent of the members of an adult population who claimed to be active, chose activities that required no leadership, no teams, no set hours, no specific facilities, and usually no equipment. Running meets these conditions and in the present study, "running program" was considered as the self-directed learning experiences of the adult as he or she develops the skills and knowledge pertinent to running.

The investigator was particularly interested in why adults of both sexes and various age groups began to run. An attempt was made to compare results among different sexed cohorts. Motives for beginning a running program were examined from physiological, psychological, and social perspectives. In terms of physiological or health factors, an effort was made to determine the significance of three separate "orientations":

1. beginning to run to maintain present health status or prevent decline,

2. beginning to run to control or remediate a specific health problem,
3. beginning to run to attain optimal or enriched health.

The dependent variables were the physiological, psychological and social reasons why adults started a running program. A sufficient number and variety of items appeared under each of the three factors (physiological, psychological, social) in the questionnaire to provide for the widest possible range of reasons which individuals might conceivably have for this important decision. The independent variables were life events experienced by the person one year prior to the onset of running, the external influences from the environment, and personal characteristics. Age (cohort) and sex were of special interest. Behavioural change (beginning to run) was investigated by considering antecedent life events and external influences as well as personal characteristics of the individual. Figure 1 is a diagrammatic representation of the study.

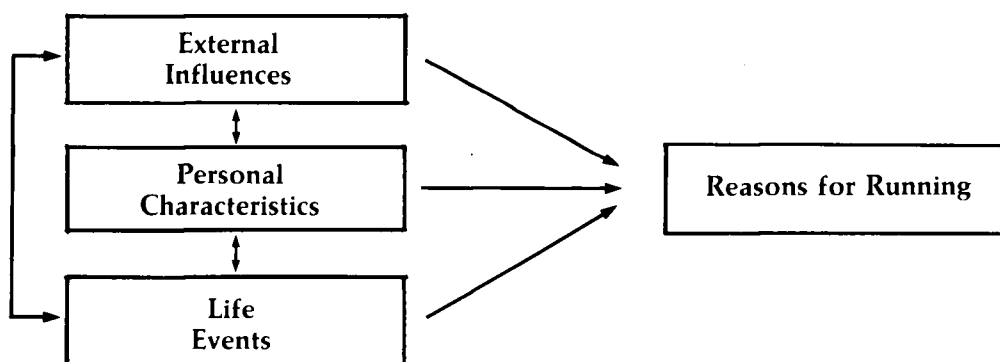


Figure 1: Relationship between independent variables and reasons for running.

Statement of the Problem

The primary aim of this study was to contribute to theory concerning the reasons why adults initiated change in exercise behaviour. The aims of the study were to:

1. Create an instrument to elicit and quantify reasons for beginning to run.
2. Examine relationships between reasons for beginning to run and:
 - a. the experience of life events one year prior to running,
 - b. the external influences of one's environment,
 - c. the personal characteristics of the individual,
3. On the basis of the data analysis, create theory concerning relationships between reasons for beginning to run and independent variables.

Information and theory obtained from this study may interest: (1) providers of recreation or fitness programs; (2) health professionals concerned with exercise prescription; (3) adult educators or counsellors; (4) public policymakers; (5) adults considering changing an exercise or health behaviour; and (6) scholars studying behavioural change.

In summary, this was an ex post facto study of adult runners. Reasons for beginning to run were dependent variables "explained" by various combinations of personal "characteristics," life "events" and external "events." It did not involve a comparison of runners and non-runners. All respondents were runners. It was their reasons for running, and variables associated with them, that were measured and analyzed. The dependent variables--"reasons" for running--were conceptually anchored in the motivational orientation research tradition (Boshier & Collins, 1982); the independent variables were largely based on theory derived from developmental psychology.

CHAPTER TWO

CONCEPTUAL FRAMEWORK

Lifespan Developmental Perspective

Traditional views of human development have emphasized growth during childhood and adolescence, stability during adulthood, and decline during old age. The lifespan developmental perspective emphasizes the potential for growth during adulthood. It has been defined as a perspective "concerned with the description, explanation, and optimization of intraindividual changes in behavior, and interindividual differences in such changes in behavior, from conception to death" (Hultsch & Deutsch, 1981, p. 15). When examining adult behaviour it focuses on the questions: What is changing?, When is it changing?, Why is it changing?, and How can it be changed? Lifespan developmental approaches assert that:

1. Development is multidirectional in that changes during adulthood differ in terms of onset, direction, duration, and termination.
2. Development involves both quantitative and qualitative change.
3. Developmental change may be viewed along multiple time-related dimensions such as chronological age, birth cohort and life transitions.
4. Development is produced by a dynamic interaction between the individual and his environment. Three important sources of influence on behavioural change are:
 - i) normative age-graded events such as biological aging and socialization events such as marriage and childbirth,

- ii) normative history-graded influences in which most members of a cohort experience historic events such as wars, epidemics, economic depression or prosperity or sociocultural evolution such as changes in sex-roles, education or leisure time,
- iii) non-normative life event influences which cannot be directly related to time, since they do not occur for all adults. Examples are divorce, promotion and illness.

5. Different sources of change are likely to occur at different points in the life cycle.
6. The timing and patterning of different sources of influence are critical.

In order to provide a more effective explanation of why adults undertake the learning of new skills or knowledge, Anderson and Darkenwald (1979) emphasize: "Further research needs to employ more sophisticated conceptions of the participation process that include personal and situational variables that can reasonably be postulated to affect the nature and timing of engagement in further learning activities."

Life Events and Life Transitions

Inherent in the lifespan developmental perspective is the notion of life events. Adult lives are characterized by transitions marked by various life events. When recalling their personal past, adults focus on critical events (periods of transition) rather than on periods of stability. Hultsch and Deutsch (1981) suggest that: "When life events are viewed as important antecedents of behavior change during adulthood, a potentially powerful explanatory framework is generated" (p. 216).

In an attempt to provide a better understanding of why individuals undertake the learning of new skills or knowledge during adult life, several investigators examined the relationship between transitions and the onset of new behaviour. Knox (1977) suggested that life events require role changes which make some form of adaptation inescapable. When a change event occurs the need for adaptation produces, for many adults, a heightened readiness to engage in learning activity.

Lowenthal, Thurnher and Chiriboga (1975) examined four transitional stages in the adult years and found that changes required in each group, whether incremental (role gain) or decremental (role loss), were potentially stressful. The changes often caused a personal reassessment: "The anticipation of an impending transition often serves as a stimulus to examine, possibly to reorient, goals and aspirations, and to reassess personal resources and impediments in the light of the probability of their attainment" (p. x).

Gould (1978), in Transformations: Growth and Change in Adult Life, said growth is the obligation and opportunity of adulthood.

Adulthood is not a plateau; rather it is a dynamic and changing time for all of us. . . . With this in mind, adults may now view their disturbed feelings at particular periods as a possible sign of progress, as part of their attempted movement toward a fuller adult life. (p. 14)

In his research on the adult life cycle, Levinson (1978) identified four overlapping developmental periods separated by five transitions. The primary task of the transition periods is to terminate the existing life structure and initiate a new one. This involves the reappraisal of the present life structure, exploration of new directions for change, and a movement toward crucial choices that will provide the basis for a new life structure. Levinson (1978) said the adult moves through the

periods in a predictable order and that specific developmental tasks are required for each. He indicates that each period is characterized by a specific lifestyle which has biological, psychological, and social components. Like other researchers, Levinson identified significant life events ("marker events"), defined as occasions or extended periods that bring about or signify a notable change in the adult's life. Consensus among researchers also exists regarding the identification of life event structures or transitions in the adult life cycle. Adults in the age groups 17-22, 28-33, and 40-45 have consistently been observed to undergo significant behavioural change.

Rather than attribute behavioural change during adulthood to internal processes, Neugarten (1968) maintains that a social framework is required to explain the timing of adult development. Because most adults are strongly influenced by the society in which they live, one must consider behavioural change in a social context. She states:

Age norms and age expectations operate as prods and brakes upon behavior, in some instances hastened an event, in others delaying it. Men and women are not only aware of the social clocks that operate in various areas of their lives, but they are also aware of their own timing and readily describe themselves as "early" or "late" or "on time" with regard to family and occupational events. . . . The saliency of age and age-norms in influencing the behavior of adults is no less than in influencing the behavior of children. (1968, pp. 143-144)

Life events are the antecedents of running. Their "separate" and "cumulative" impact on reasons for running were studied. It was anticipated that different age and sex cohorts would have different reasons for running.

Research by Lowenthal, Thurnher and Cheriboga (1975) provided information regarding age and sex differences in exposure to life events. The investigators found that young adults reported more

exposure to life events than middle-aged parents and adults about to retire. The younger tended to report more positive stresses while the older tended to report more negative stresses. Differences were also recorded between males and females in terms of cause of stress. The most salient source of stress for men was work while the most salient sources of stress for women were health and the family. Middle-aged women were especially stressed by events associated with their children's education, marriage, and occupation. The researchers emphasized that the critical issue was not the mere occurrence of a life event, but how the adult perceived it. What one adult may experience as a catastrophe, another may experience as a challenge. Lowenthal and her colleagues made the distinction between exposure to stress (self-reported incidence of life events) and perceived stress. Their conclusions suggest that there are both age and sex differences in life event experiences and that sex differences appear to be more significant than age differences.

Hultsch and Deutsch (1981) emphasized that the focus of research into adult development must be on behaviour change processes rather than age-change functions. Because age-change functions only identify what behaviours are related to age, chronological age is viewed as a descriptive variable only. Thus, age is considered as an index of physiological, psychological, social, and self-perceived changes that occur over time. Kimmel (1980) argues that age does not cause these changes; ". . . it is merely an index of the speed with which the changes take place." Apparent age differences between different cohort groups of adults are not caused by age; instead, "they are the result of social, biological, and psychological changes in addition to having

lived longer and accumulated more experience" (1980, p. 31). Kimmel stresses that researchers must look behind "age" to examine physiological and psychosocial antecedents responsible for changes in adults.

There are two general factors which must be considered in order to understand how adults respond to life events. The first consists of the physical, psychological, and social characteristics of the individual. When investigating changes in exercise behaviour, the physical health and fitness status as well as skill level certainly influence the adoption of a more physically active lifestyle. The mode and extent of exercise which one might engaged in is largely determined by the physical capacities of the individual.

Personality also influences how the adult will adapt to life events. Costa and McCrae (1980) identified three broad domains of adult personality: neuroticism, extroversion, and openness to experience. Their research suggests that virtually all life events over which individuals had any control were related to these domains. The impact of life events is also affected by social factors such as ethnic beliefs, socio-economic status, education, income, and interpersonal support systems such as family, friends, and work associates. Interpersonal support providing physical, psychological, or financial resources has been shown to vary in availability over the life cycle. Thus, individuals having marginal interpersonal support may respond less effectively to life events than those having more supportive interpersonal relationships.

The second general factor associated with how the adult responds to life events is the mediation of the environment. The type and frequency

of external influences vary in different socioeconomic or cultural settings. In some segments of the population the adult runner would be considered "exceptional" or even "odd." However, in other groups the reverse may occur, in that running is regarded as a "normal" adult activity. Through various media fitness promotions such as Participaction and television coverage of community running events, nearly all segments of the Canadian population have been made aware of the increased adult participation in recreational running. The influence of these sources of information appears to vary among specific socioeconomic or ethnic groups. Because most of the models appear to be middle class, leisure-oriented Caucasians, it seems reasonable to expect that members of specific minority groups might not identify with the individual presented. Indeed, some having different attitudes and perceptions regarding adult participation in running programs might shake their heads in amazement.

Reasons for Running

Previous research by the investigator and others indicates that reasons why adults initiated a running program can be categorized as biological, psychological, and social. The most common reasons for beginning are anticipated physiological adaptations. Some adults run to regain their health and others to maintain it. Aslanian and Brickell (1980) regard physical health as a desired status among most adults and suggest that adults learn new exercise behaviours because "they have lost their health (a past transition), because they are losing it (a current transition), or because they are afraid they will lose it (an anticipated transition)" (p. 81).

A common triggering event is the realization that one is aging.

Something happens to make a person realize that the years are slipping by and that fitness is slipping away: the arrival of a thirtieth birthday, a comment from a friend met after a few years of separation, or the wedding of one's child are the kinds of clear signals that can trigger the decision to learn how to stay healthy. (Aslanian & Brickell, 1980, p. 83)

The present interest in preventive medicine which encourages individuals to assume more responsibility for their own health has stimulated some adults to begin running programs. One motivating factor is the awareness that the poor health habits that had little effect on one's health and appearance at a younger age are now taking their toll. Overeating, smoking and sedentary living eventually manifest themselves in an undesirable or even alarming occurrence. Events such as stepping on a scale for the first time in months or becoming out of breath after climbing a flight of stairs motivate some adults to engage in new behaviours in an attempt to prevent further deterioration.

Rather than running to prevent deterioration or recover from a health deficit, some individuals indicate that running was regarded as a means to attain new insights and degrees of health not previously experienced. For these adults, involvement in regular physical activity serves to improve quality of life through the adoption of a healthier lifestyle. Tough (1971) identified a cohort effect and indicated that a new trend in adult learning is based on lifestyle decisions in which the adult is attempting to gain control over his own physical health. Commonly heard phrases such as "listen to your body," or "free your body" would have been rare twenty years ago.

Sedentary lifestyles, hypokinetic disease, and an increasingly older population all contribute to the decision of adults to engage in recreational fitness. Adults 21 years and older currently account for

65 percent of the population and, in the future, will represent an even greater proportion. Gould (1978) has commented that North American society is entering the "century of the adult." As more adults become aware of the need for regular physical activity throughout the life cycle one can anticipate an increase in adult participation in physical fitness activities.

Many adults indicate that they began running for psychological reasons. Although psychological variables are usually investigated as consequences of running, reasons for beginning to run such as running to escape routine, reduce stress, or achieve a personal goal are reported by some adult runners.

Recent research into the psychodynamics of running suggests that running can lend itself to any meaning or significance the individual wishes to project into it. According to Sacks and Sachs (1981), the adaptability of running to each individual

is very much in keeping with the psychodynamic theory and its emphasis on the plasticity of behavior in representing conflicts and fantasies. Certainly this could explain the immense popularity of the sport among so many different people, each of them finding in their running a meaning special to their own history and character. (p. 68)

Behavioural medicine research has attempted to apply psychological techniques to modify health and exercise behaviours. Motivation is shown to involve both the arousal and direction of exercise behaviour. In a discussion of motives for participation in physical activity, Sharkey (1979) explained: "The direction of behavior, that is, where and how one behaves when aroused, is a complex study involving a multitude of learned behaviors and the interaction of these behaviors with ever varying situations" (p. 208). Thus, one would expect that

"motives" would vary between individuals and be influenced by the level of arousal and previous exercise experiences.

Although few, if any, previous studies have attempted to investigate the relationship between the reasons why adults begin to run and antecedent variables, research has been conducted to categorize reasons why adults participate in physical activity. In an investigation of attitudes towards physical activity, Kenyon (1968) categorized the reasons for adult involvement in physical activity into the following:

1. social experience
2. health and fitness
3. pursuit of vertigo (thrill of speed and change of direction while remaining in control)
4. an aesthetic experience
5. catharsis (reduction in stress or tension)
6. an ascetic experience (discipline or regimentation of training).

Motivational Orientations

As a major purpose of the present study was to provide an explanation of the reasons why adults began to run it was necessary to identify major types of "motives." Typologies assume that general patterns of behaviour exist and provide order or structure in considering them. They also facilitate research because general types rather than idiosyncratic individuals can be measured. Because the present investigation involved adult participation in a self-directed exercise program, the concept of motivational orientation was borrowed from the adult education research literature. This concept served the

purpose of identifying specific "orientations" that "motivated" or influenced adults to initiate and participate in individualized running programs.

The present study has been greatly influenced by the research findings of Boshier (1971, 1976, 1983, 1984), and Boshier and Collins (1982, 1984). Boshier's contribution to theory and research methodology concerning adult participation in learning activities was especially important in the creation of the instrument to measure reasons for beginning running and in the investigation of the relationships between "orientation" scores and other variables.

Because of the desire to integrate the study into established conceptual frameworks and psychometric procedures, it was decided to investigate relationships between the adult's reasons for beginning to run and a variety of independent variables. It was anticipated that the reasons why adults begin to run would be related to the personal characteristics of the individual, life events experienced, and external influences.

CHAPTER THREE

DEVELOPMENT OF THE INITIAL REASONS FOR RUNNING SCALE

As the primary aim of this study was to contribute to theory concerning reasons why adults began running it was considered essential to have an instrument which identified motives for beginning to run. As a literature search failed to produce an instrument specifically designed to measure initial reasons for beginning a regular exercise program it was necessary to develop the Initial Reasons For Running Scale (IRFRS). Boshier's (1982) Education Participation Scale provided a model which identified the structure of motives for adult participation (motivational orientations) as well as the functional relationships in which the motives for beginning a specific activity are considered as dependent variables "predicted" by various sociodemographic variables.

Realizing that many reasons motivate adults to begin running, it was necessary to generate an item pool which encompassed as many relevant "motivators" as possible. Initially, 75 potential items were obtained from previous research by the investigator, conversations with adult runners, and discussions with fitness leaders. Each item was typed on a card and sorted into a-priori factors. Even at this stage it was apparent that some items concerned "Solitude," "Personal Challenge," "Socialization," "Prevention," "Remedial," and "Health." Twenty-five items were considered redundant and eliminated. The remaining 50 were arranged so that items expected to load on the same factor were systematically distributed throughout the instrument. The items were

cast on a four-point scale (No Influence, Little Influence, Moderate Influence, Much Influence). The instructions and the first three items were:

Think back to the time immediately before you began to run. Indicate the extent to which each of the reasons listed below influenced you to begin running. Circle the category which best reflects the extent to which each reason influenced you to begin running. No reason is any more or less desirable than any other. Circle the one category for each reason.

START HERE:

- | | | | | |
|----------------------------|--------------|------------------|--------------------|----------------|
| 1. To improve energy level | No influence | Little influence | Moderate influence | Much influence |
| 2. To live longer | No influence | Little influence | Moderate influence | Much influence |
| 3. To escape boredom | No influence | Little influence | Moderate influence | Much influence |

IRFRS data provided by 205 subjects were intercorrelated. Next, item means, S.D.'s, minimum and maximum scores were examined and compared with hand calculations on some of the raw data. The correlation matrix was then factored. Orthogonal (varimax) rotation was performed because of a desire to produce uncorrelated factors. This yielded 15 factors with eigenvalues greater than one. The content of each factor was examined and then eight, seven, six, five, and four factor solutions were generated. During step two of this analysis, idiosyncratic items that failed to load on major factors were also disregarded. Again a variety of solutions was generated. After a third step during which additional items were deleted, the "final" solution was extracted from the correlation matrix. This consisted of six pure, interpretable and psychologically satisfying factors.

Items shown in Table 1 are the 34 that remained after successive factor analyses. Sixteen items were deleted during the analyses. For clarification purposes, items have been renumbered 1 to 34. Table 1 shows item means, standard deviations, and loadings on each of the factors. The six factors accounted for 52.13 percent of the total variance.

The first factor accounted for 20.23 percent of the variance, the second for 8.37, the third for 7.54, the fourth for 7.26, the fifth for 4.45, and the sixth for 4.28. Factor I, SOLITUDE, consisted of nine items whose loadings ranged from .46 to .83. This factor measured the extent to which beginning to run is related to efforts to provide solitary time and escape from daily routine. Casual observation suggests that many adults consider an individualized or self-directed exercise program such as running more appealing than more formal and organized group activity. Individuals who score high on this factor begin running because it provides the opportunity to be alone and temporarily escape from external pressures or demands. The items and loadings for SOLITUDE are shown below:

FACTOR I		
SOLITUDE		
7.	To provide a quiet time	.83
34.	To provide a solitary time	.80
28.	To provide my own block of time	.73
9.	To provide relaxation	.68
31.	To help cope with an emotional crisis	.64
4.	To help sort out problems	.60
18.	To escape from routine	.55
2.	To escape boredom	.50
29.	To provide an aesthetic experience	.46

TABLE 1: Initial Reasons For Running Scale: Item Means, S.D.'s, and Factor Loadings

	Mean	S.D.	FACTORS					
			I	II	III	IV	V	VI
7. To provide a quiet time	2.17	1.05	.83*	.12	.06	.06	-.02	.09
34. To provide a solitary time	2.09	1.11	.80*	.10	.07	.07	-.05	.12
28. To provide my own block of time	1.92	1.06	.78*	.14	.01	.11	-.05	.13
9. To provide relaxation	2.64	1.02	.68*	.11	-.08	.13	-.01	.25
31. To help cope with an emotional crisis	1.72	.98	.64*	-.08	.24	-.15	.29	-.06
4. To help sort out problems	1.91	1.02	.60*	.03	.08	.04	.26	-.19
18. To escape from routine	1.81	.90	.55*	.29	.12	.14	-.06	-.07
2. To escape boredom	1.80	.87	.50*	.19	-.06	.02	.14	-.28
29. To provide an aesthetic experience	1.74	.93	.46*	.19	.36	-.03	.09	.28
3. To compete against myself	2.21	1.05	.04	.81*	-.06	-.02	-.05	.09
24. To compete against others	1.46	.81	-.02	.70*	.20	-.06	-.01	-.01
12. To provide a personal challenge	2.65	1.06	.18	.68*	-.01	-.08	.03	.30
5. To satisfy curiosity regarding running	1.91	.96	.21	.62*	.03	.09	.06	.10
6. To make new acquaintances	1.33	.65	.19	.61*	.12	.32	-.02	-.22
32. To interact with others	1.43	.72	.16	.54*	.32	.29	-.01	-.15
17. To experience the "runner's high"	1.73	.95	.26	.48*	.15	.08	.32	.23
20. To gain self-confidence	1.82	.97	.22	.43*	.27	.09	.38	.13
14. To be liked	1.16	.50	.11	.20	.72*	.22	-.04	-.16
26. To get social status	1.25	.56	.11	.32	.65*	.15	-.08	.01
22. To conform to the influence of others	1.30	.67	-.17	.20	.62*	-.05	.04	.09
10. To provide opportunity to buy "in" clothes	1.16	.51	.04	-.07	.60*	.17	.07	-.03
23. To get rid of guilt	1.35	.73	.19	.06	.54*	-.31	.22	.28
33. To avoid confronting a problem	1.20	.56	.29	-.05	.53*	-.06	.23	-.13
1. To live longer	2.43	1.07	.01	.02	.12	.74*	.02	.15
27. To prevent heart disease	2.51	1.14	.03	-.02	-.03	.72*	.24	.31
15. To prevent premature aging	1.98	1.09	.12	.11	.21	.61*	.03	.23
21. To increase joint mobility	1.78	.90	.19	.10	.02	.55*	.16	.03
30. To help control specific health problem	1.64	1.02	.07	-.02	.18	.14	.70*	.10
11. To follow the advice of a physician	1.30	.79	-.04	-.02	.04	.35	.62*	-.20
19. To help quit smoking	1.49	1.03	.07	.09	-.07	-.03	.58*	-.01
13. To compensate for bad nutritional habit	1.68	.97	-.04	-.03	.38	.08	.42*	.27
8. To maintain good physical health	3.66	.59	.08	.18	-.13	.30	-.15	.67*
16. To improve physical health	3.60	.63	-.03	.11	-.07	.35	.03	.65*
25. To improve appearance	2.83	.97	.14	.03	.25	.15	.23	.45*
Variance accounted for (%)			20.23	8.37	7.54	7.26	4.45	4.28
Cumulative variance accounted for (%)			20.23	28.60	36.14	43.40	47.85	52.13

Factor II, PERSONAL CHALLENGE, consisted of eight items with loadings that ranged from .43 to .81. This factor measured the extent to which an individual began running for "curiosity" or "challenge." Adults scoring high on this factor are often directly or indirectly influenced by other individuals and eventually decide to "see what it is all about." Some indicate that they set a personal goal to run a certain distance or to equal the performance of another. Certainly the prevalence of runners in our society and the media attention given to running stimulate many adults to "join the movement." The items and loadings for Factor II are shown below:

FACTOR II

PERSONAL CHALLENGE

3.	To compete against myself	.81
24.	To compete against others	.70
12.	To provide a personal challenge	.68
5.	To satisfy curiosity regarding running	.62
6.	To make new acquaintances	.61
32.	To interact with others	.54
17.	To experience the "runner's high"	.48
20.	To gain self-confidence	.43

Factor III, SOCIALIZATION, consisted of six items with loadings ranging from .53 to .72. SOCIALIZATION measures the influence of the image and social status of running. Casual observation suggests that some individuals begin running to conform to the expectations of significant others or to identify with the fitness image. Certainly some adults feel almost compelled to run because of the connotations and values placed on running by certain segments of the population. This factor also measured the extent to which individuals began running to

get rid of guilt or to avoid confronting a problem. Items and loadings for Factor III are shown below:

FACTOR III

SOCIALIZATION

14. To be liked	.72
26. To get social status	.65
22. To conform to the influence of others	.62
10. To provide the opportunity to buy the "in" clothes	.60
23. To get rid of guilt	.54
33. To avoid confronting a problem	.53

Factors IV, V, and VI were all concerned with the physical or health related aspects of running. Together they accounted for 15.99 percent of the total variance. Because each of the three factors focused on a specific component of health, they were analyzed separately. Factor IV, PREVENTION, measured the extent to which individuals began running to live long and prevent premature aging. It consisted of four items ranging from .55 to .74. Adults who score high on this factor consider running as a means of increasing joint mobility and preventing heart disease. Items and loadings for PREVENTION are shown below:

FACTOR IV

PREVENTION

1. To live longer	.74
27. To prevent heart disease	.72
15. To prevent premature aging	.61
21. To increase joint mobility	.55

Factor V, REMEDIAL, consisted of four items with loadings that ranged from .42 to .70. High scorers on this factor began running in an

attempt to help control a specific health problem. Running was recommended by a physician and was used as an intervention in assisting the individual to quit smoking or to provide compensation for a "bad" nutritional habit. Many adults regard running as a counterbalance to overeating or consuming a non-nutritious diet. For some adults, it is preferable to "run off" a nutritional problem rather than to change eating habits. Others support Sheehan's (1980) claim that it is difficult to continue smoking after one begins running regularly. They believe that by beginning to run they will reduce or eliminate their need for cigarettes. Items and loadings for REMEDIAL are indicated below:

FACTOR V

REMEDIAL

30. To help control a specific health problem	.70
11. To follow the advice of a physician	.62
19. To help quit smoking	.58
13. To compensate for a bad nutritional habit	.42

Factor VI, HEALTH, measured the extent to which individuals began running to maintain current health or attain optimal health. It is hypothesized that high scorers on this factor are maintenance or growth oriented in terms of health status rather than deficiency oriented as indicated in Factor v. Running is not regarded as a means of dealing with a health problem but as a means of striving for optimal fitness. Factor VI was in many respects related to PREVENTION. However, the emphasis in HEALTH is more on present or immediate health and appearance rather than preventing future medical problems. Items and loadings for HEALTH are shown below:

FACTOR VI

HEALTH

8. To maintain good physical health	.67
16. To improve physical health	.65
25. To improve appearance	.45

Scale Scoring

Factors are often derived by including items with loadings of .40 or greater. In the present analysis the loadings ranged from .42 to .84. Each of the six factors is composed of "pure" items loading high on its "own" and low on other factors. No passenger items (items which fail to load on any factor) are included in the 34 item form of the IRFRS.

Although the structural foundations of motives for beginning to run are of great interest, the procedures described above were primarily designed to yield IRFRS scores that could be related to selected independent variables. One outcome of the present study was a desire to construct a psychometrically and conceptually defensible instrument capable of measuring clusters of reasons for beginning a running program. As it is anticipated that most potential users of this instrument will not have access to computational facilities it was decided to utilize scale scores rather than factor scores calculated from regression coefficients.

Scale scores indicating the relative contribution of each of the six factors in the person's decision to begin running were calculated by summing the "raw" responses to items that constituted each of the factors. Because each factor was composed of a different number of items, it is the scale score mean (derived by dividing the total score

by the number of items) which yields significant information. Since this was the first study using the IRFRS and there were no baseline or comparison groups against which the present data could be compared, little significance can be attached to the differences between the mean scores. However, the data now constitutes the IRFRS norms against which other populations can be compared. Table 4, shown in Chapter 8, shows total scale scores, S.D.'s, and scale score means for each of the factors.

CHAPTER FOUR

DEVELOPMENT OF THE LIFE EVENT SCALE

Life cycle and developmental researchers have identified internal and external life events which are often antecedents to behavioural change. These events may be normative, that is, experienced by most adults during a particular stage of the life cycle, or they may be idiosyncratic. Idiosyncratic life events are those unique to an individual. The timing of life events has also been identified as an important consideration in understanding adult behaviour. Neugarten (1968) emphasizes the significance of a "social clock" which determines whether or not an individual is "on time" in experiencing a specific life event.

Researchers in developmental psychology describe a predictable pattern of life structure in which the adult progresses through a series of alternating stable (structure building) periods and transitional (structure changing) periods. Life events are considered as precipitators of transitional periods characterized by behavioural change. These events have been referred to as "marker events" (Levinson, 1978), "stressors" (Lowenthal, 1975), and "triggers" (Aslanian and Brickell, 1980). In an attempt to quantify the relative stress of life events, Holmes and Rahe (1967) developed The Social Readjustment Scale. In this instrument, a list of life events and corresponding stress scores were provided. Items range from Death of Spouse, having a stress score of 100, to Minor Violation of Law, having a stress score of 11. The total score from the 42 items places the

individual in one of three ratings: low stress (150 or less), moderate stress (151-300), or high stress (300 or higher). Results from the rating scale are then associated with the likelihood of experiencing a stress-related illness.

Although the Social Readjustment Scale clearly identified and quantified specific life events, it did not adequately satisfy the conceptual and psychometric purposes of this study. The investigator was particularly interested in the subject's perception or emotional response to a specific life event. That is, unlike the Social Readjustment Scale in which relative values are allocated to specific life events (e.g. Divorce = 73, Death of Close Friend = 37), it was considered important to construct an instrument which measured the effect of an event on an individual. Not only can the same event be perceived differently in terms of intensity or magnitude by two individuals but it may also be responded to in an ambivalent, positive, or negative manner. It is possible that a life event such as pregnancy could be perceived very differently among different individuals. The investigator believed that Life Event Scale scores, to be most useful as variables that might contribute to the explanation of variance in the Initial Reasons for Running Scale scores, should not only measure the incidence of life events but also the effect of the event on the individual. Because no appropriate instrument was available from previous research it was decided to construct an instrument for the specific purposes of the present study.

The first form of the Life Event Scale (LES) was composed of 100 items derived from a literature search, interviews with social scientists, and group discussions. Each item was typed on a card and

then sorted into a-priori factors. Twenty-nine redundant items were eliminated and the remaining 71 items rearranged into the following categories: HEALTH, FAMILY, DEATH, SOCIAL, EDUCATION, RESIDENCE, FINANCES, and WORK.

For each item the subject was requested to indicate whether he or she had experienced the event by checking NO, ?, or YES. If the response was YES, the subject then indicated the effect of the event on a seven-point scale. The scale measured not only magnitude of effect but also whether it was perceived as positive or negative. Here are the instructions and the first three items:

LIFE EVENTS

Consider the two year period prior to when you began to run regularly (minimum twice per week).
Did you experience any of the following events? If so, what effect did they have?

A. HEALTH

1. Gained weight	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
2. Experienced traumatic health change (eg. heart attack, fracture, low back pain)	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
3. Became aware of decreased fitness (eg. less energy, decreased physical capacity)	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive

Frequencies were computed on the LES data provided by 205 respondents. In order to determine whether the perceived effect of a life event was more significant than simply indicating an absolute score (whether or not a specific life event was experienced), three different systems of coding were employed. SPSS RECODE was used to aggregate life event values into three classes or systems. The first was an accumulative absolute score for each category in which a NO or ? response was measured as zero and a YES score was coded from 1 (Very Negative) to 7 (Very Positive). For instance, subject 145 received

category scores of 8, 2, 0, 5, 2, 2, 3, 3 for a total life event score of 25.

The second coding system measured magnitude of response in that YES responses of Very Negative and Very Positive were scored as 3, Moderately Negative and Moderately Positive were scored as 2, Mildly Negative and Mildly Positive were scored as 1, and No Effect was scored as 0. For instance, subject 145 received category scores of 18, 1, 0, 3, 3, 2, 1, 3 for a total life event score of 31.

The final coding system measured both the magnitude of response and whether it was perceived as negative or positive. YES responses of Very Negative were scored -3, Moderately Negative were scored -2, Mildly Negative were scored -1, No Effect were scored 0, Mildly Positive were scored +1, Moderately Positive were scored +2, and Very Positive were scored +3. For instance, subject 145 received category scores of -14, -1, 0, +3, +1, +2, +1, +3 for a total life event score of -5.

In order to determine which coding system would be utilized in subsequent analyses, a Pearson Correlation was performed to show relationships between the six IRFRS factors and the LES scores as coded by each of the three coding systems. Because there were no significant differences in the results of the correlations of the three coding systems, it was decided to utilize the accumulative absolute system for the analysis of the data.

CHAPTER FIVE

DEVELOPMENT OF THE EXTERNAL INFLUENCE SCALE

During the past decade, a "running explosion" has occurred. Increasing numbers of recreational runners of all ages are observed throughout the community and a vast amount of public and media attention is given to running. It is hypothesized that a significant factor in the motivation of an individual to begin running is exposure to external societal influences. Research in behavioural medicine has indicated that external influences are integral components of behaviour modification strategies to encourage a greater personal commitment to increased physical activity. Kier and Lauzon (1980) suggested that many adults have begun to run because of massive marketing and promotion programs as well as the increasingly frequent observation of adult runners. Organizations such as Participaction, a non-profit organization dedicated to promoting health and fitness in Canada, deliver fitness messages through extensive public service campaigns as well as corporate involvement. Large numbers of Canadians are exposed to fitness or running related messages through various media presentations.

Mass media are channels of communication through which large numbers of the population are reached. They are used in relation to health or exercise behaviour, to advertise or promote products or practices consistent with physically active lifestyles. Research has indicated that the message communicated must be relatively simple and may be delivered through electronic media such as radio and television

or print media such as newspapers and billboards. In a classic article, The Role of Mass Media in Public Health, Griffiths and Knutson (1960) emphasized three effects of the mass media on health behaviour:

1. increase knowledge
2. reinforce previously held attitudes (but not change contrary attitudes)
3. cause behavioral change, provided that a psychological predisposition to such an action already exists. (p. 516)

Tough (1979) suggested that during a self-directed learning project, the adult is greatly assisted by nonhuman resources. In their attempts to adopt new behaviours, adults most often received relevant information from communication sources such as television, radio, books, newspapers, and magazines. Through increased public interest and expanded vehicles of communication, today's adult is exposed to much more information regarding physical fitness and exercise than at any previous time.

Green (1975) investigated the effects of mass media on the adoption of new health behaviours. His findings regarding the relationships between communications and the diffusion of innovations suggested that the mass media are most effective in influencing adoption of behaviour during the early stages of the diffusion process.

Recent advances have been made in the application of communication techniques to fitness promotion. Communication researchers, knowledgeable about the factors in the communication/persuasion matrix, have identified essential components in the design and delivery of fitness promotion campaigns. Through a seven-step process the communications professional can identify target populations and select appropriate media techniques. McGuire (1981) suggested that fitness and health professionals usually do not have the expertise to consider the

wide spectrum of issues that arise in constructing a public health persuasion campaign. He emphasized that through various psychological analyses, the communications professional can show whether a deficit of motivation or of information underlies a sedentary lifestyle.

Bandura's (1971) social learning theory contributes to a theoretical framework in our understanding of external influences. Adoption of new behaviour such as running may be precipitated by observing the behaviour of others (modelling). Influential models may be provided through personal contact or various audio-visual presentations such as television and film productions, photographs, and billboards. In a recent formulation, Bandura (1978) suggests a reciprocal interaction model in which adult behaviour is regulated by immediate influences and by performance skills and anticipation of the consequences for different courses of action. Bandura describes the interplay between environment and behaviour as a reciprocal influence process in which the environment shapes adult behaviour, but individuals also shape their environment. Hence, the adult's relationship with his or her environment is an "open" system, modifiable by providing the individual with appropriate skills for self-directed behavioural change and motivating him or her to make use of them.

Realizing that a wide variety of external "messages" are consciously and unconsciously experienced by an individual, an item pool which encompassed as many types of external influences as possible was generated. Twenty-five items were derived from a literature search and interviews with physical educators and fitness leaders. Eight were eliminated because of redundancy or not being relevant to all adults in the population. Some of the items were purposely designed to be broad

in their scope such as "A commercial advertisement which employed a running or fitness image." Others like "Fitness message comparing a 60 year old Swede to a 30 year old Canadian" were intended to measure the significance of a specific influence.

The final form of the instrument was composed of 17 items. Subjects were requested to indicate YES, ?, or NO for each item. The instructions and the first three items were:

During the two years before you began to run twice a week did you read, see, or hear the following? Circle YES, ?, or NO.

- | | | | |
|------------------------------------|-----|---|----|
| 1. Television coverage of a | YES | ? | NO |
| running event (e.g. marathon, | | | |
| community fun run) | | | |
| 2. A television movie in which | | | |
| running was portrayed. | YES | ? | NO |
| 3. A motion picture which featured | | | |
| running. | YES | ? | NO |

Intercorrelations of EIS data provided by 205 subjects was computed. Items means, S.D.'s, and minimum and maximum scores were then examined and compared with hand calculations of some of the raw data. Next, the correlation matrix was factored and orthogonal rotation was performed to produce uncorrelated factors. This yielded four factors with eigenvalues greater than one. The content of each factor was examined and then four and three factor solutions generated. The four factor solution was selected as the one providing maximum interpretation and psychometric satisfaction. The final solution extracted from the correlation matrix consisted of 13 items. Three items (items 14, 8, 12) were eliminated in the analysis because they did not load significantly

(.39 or less) on any factor. Item nine was eliminated because it was factorially impure, loading on three different factors. Item ten, which had a loading of .56 on Factor I and .57 on Factor IV was only included in Factor IV for purposes of interpretation. Table 2 shows item means, standard deviations, and loadings on each of the factors. The four factors accounted for 53.04 percent of the total variance. The first factor accounted for 29.21 percent of the variance, the second for 9.98 percent, the third for 7.47 percent and the fourth for 6.37 percent.

Factor I, MODEL, consisted of four items with loadings ranging from .61 to .69. This factor measured the extent to which an individual is influenced by a celebrity or public figure or a specific individual performance. Individuals who score high on this factor are influenced by role models who may be celebrities or individuals presented in media promotions with whom they can identify. The items and loadings for MODEL are indicated below:

FACTOR I

MODEL

15. A celebrity or public figure who endorsed fitness or running	.69
11. Action B.C., fitness promotion	.66
16. Individual athletic performance having great emotional impact	.62
17. Media promotion of "self-growth"	.61

II, MEDIA, measured the extent to which an individual was influenced by the media. This factor consisted of five items whose loadings ranged from .53 to .81. Curiosity and interest in various aspects of running may be stimulated by electronic and printed mass media communications. Indeed, rarely does a day go by when one is not

TABLE 2: External Influence Scale: Item Means,, S.D.'s, and Factor Loadings

			FACTORS			
	Mean	S.D.	I	II	III	IV
<u>MODEL</u>						
15. A celebrity or public figure who endorsed fitness	1.64	.93	.69*	.20	.13	-.24
11. Action B.C. fitness promotion	1.55	.89	.66*	.13	-.03	.08
16. Individual athletic performance having emotional impact	1.79	.97	.63*	.08	.39	-.06
17. Media promotion of "self-growth"	1.82	.98	.61*	.23	-.03	.03
<u>MEDIA</u>						
6. A magazine article related to running	2.19	.98	.15	.81*	.09	-.07
5. A newspaper article related to running	2.12	.99	.19	.75*	.18	.07
4. Radio promotion or coverage of a running event	1.71	.95	.21	.59*	.28	.14
1. Television coverage of a running event	2.22	.97	.19	.59*	.46	.07
7. Specific running publication such as Runner's World	1.57	.89	.209	.53*	.01	-.49
<u>MOVIE</u>						
3. A motion picture which featured running	1.53	.88	.04	.25	.79*	-.01
2. Television movie in which running was portrayed	1.75	.96	.01	.29	.79*	-.05
<u>PARTICIPATION</u>						
13. Fitness message comparing 60 year old Swede...	2.23	.97	.11	.13	-.03	.70*
10. Participaction fitness promotion	2.32	.95	.56	.11	.05	.57*
Variance accounted for (%)			29.21	9.98	7.47	6.37
Cumulative variance accounted for (%)			29.21	39.20	46.67	53.04

exposed to some aspect of running through the media. Because of the increased public awareness and interest in fitness and recreation, running articles have become commonplace in popular reading sources such as newspapers and magazines as well as specific running publications such as "Runner's World." The items and loadings for MEDIA are shown below:

FACTOR II

MEDIA

6.	A magazine article related to running	.81
5.	A newspaper article related to running	.75
4.	Radio promotion or coverage of a running event	.59
1.	Television coverage of a running event (marathon, community fun run)	.59
7.	A specific running publication such as "Runner's World"	.53

Factor III, MOVIE, consisted of two items with loadings of .79. This factor measured the extent to which a specific television or motion picture production influenced an individual. Adults scoring high on this factor can identify a particular movie or film which introduced them to running or significantly increased their interest. The items and loadings for MOVIE are shown below:

FACTOR III

MOVIE

3.	A motion picture which featured running	.79
2.	A television movie in which running was portrayed	.79

Factor IV, PARTICIPATION, consisted of two items with loadings of .57 and .70. It is hypothesized that many adults have been influenced

throughout Canada by the fitness promotion campaigns of Participaction. Indeed, one of the major functions of Participaction is the distribution of fitness information to reach as many Canadians as possible. One particularly effective message was the comment comparing the fitness levels of a mythical Swede to a typical Canadian adult. Because this message was identified so often by adults in the community it was included in the present study. The items and loadings for PARTICIPACTION are shown below:

FACTOR IV	
PARTICIPACTION	
13. Fitness message comparing a 60 year old Swede to a 30 year old Canadian	.70
10. Participaction fitness promotion	.57

Scale Scoring

In the present analysis item loadings on the factors ranged from .53 to .81. Scale scores were generated to show the extent to which an individual was influenced by each of the four factors. Table 7 shows the mean scale scores for each EIS factor. Item means were calculated by dividing the mean scale score by the number of items on each factor. For illustrative purposes mean EIS scores for the 205 subjects are shown in Figure 7.

Individual Background Variables

In addition to IRFRS, LES, and EIS variables, data on 14 other independent variables were collected. As this study was designed to proceed in a more inductive than deductive manner, it was considered

desirable to include variables which, although not necessarily directly related to the dependent variable, might prove useful in later analysis.

Individual background variables were of the following three types:

1. Personal Variables

Sex

Age

Place of birth

Living arrangements

Educational qualification

Occupational status

Duration of residence in the Lower Mainland

2. Previous Athletic Participation Variables

Competitive athlete during school years

Competitive athlete after leaving school

Participation in team sports prior to running

Participation in individual sport or exercise program prior to running

3. Running Variables

Running before or after moving to Lower Mainland

Number of months running twice a week

Distance run in an average week

Location of run

The manner in which each of the background variables was operationalized is shown in Appendix B. where the complete questionnaire is reproduced.

CHAPTER SIX

METHOD

Preliminary Processes

In order to determine participant comprehension of the directions and items on the instruments, 24 individuals were administered the questionnaire prior to the actual study. Thirteen were recreational adult runners from various locations in the Lower Mainland and eleven were Nursing students who ran regularly as part of their personal fitness programs. Next, the researcher visited several parks and tracks reported to be popular locations for recreational adult runners. The frequency at which runners appeared and characteristics of the runners (age, sex, level of performance) were recorded at different times of the day on each day of the week. This process yielded data concerning locations and times when subjects could be most effectively approached to participate in this research project. Popular running locations such as Brockton Oval were not included because of the predominance of more serious competitive runners who did not represent the type of runner under consideration in the present study.

One hundred and seventy subjects were selected while running at previously identified parks and tracks located in different socioeconomic areas of Greater Vancouver. The remaining 35 were selected after having been observed running on neighbourhood streets. Although considerably more difficult to research, it was considered necessary to include subjects who ran on streets throughout the community as opposed to those who ran in designated recreational areas

such as parks and tracks. The researcher was often compelled to accompany the neighbourhood runner on a run as in most cases the beginning and ending location of the run was the individual's residence. This data collecting procedure soon became the researcher's primary personal exercise program.

Administering the Questionnaire

Administration of the questionnaire was considerably more efficient at tracks and parks as the researcher could position himself at strategic locations where most individuals began and ended their runs. Indeed, in three locations (Stanley Park Seawall, Central Park clubhouse, and Minoru Park pavilion) the researcher was able to set up a table with chairs so several subjects could simultaneously complete the questionnaire. On these occasions the researcher provided written materials on various aspects of running to participants who had taken time to participate in the study. On three occasions subjects were personally unable to complete their questionnaires. One was a blind lady who had a friend write responses to each item. On the other two occasions the researcher recorded the data for one individual who was too exhausted after her run to write legibly, and for another who had both hands bandaged.

During the process of selecting subjects and administering the questionnaire, the researcher wore a badge that clearly indicated he was a researcher from the University of British Columbia conducting a study on adult runners. The initial step in subject selection was to observe an individual running or in the process of preparing for a run or having just completed a run. This ensured that each subject actually engaged

in the behaviour of interest in the study. Subjects were then approached and asked: "Would you be willing to spend approximately 15 to 20 minutes to complete a questionnaire regarding the reasons why you began running?" If the individual responded affirmatively, it was then determined whether or not the following criteria for selection were satisfied:

1. over 18 years of age
2. run on the average at least twice a week
3. have started running twice a week within the past five years.

Anonymity was assured as subjects were identified by a serial number and were not required to provide their names. Approximately the same number of subjects completed the questionnaire prior to their run as compared to those who completed it following their run. The time taken to complete the questionnaire varied from 15 minutes to 40 minutes. This reflected the range of verbal and reading abilities encountered in the subjects as well as different levels of fatigue in those having just completed a run. Some "took their time" and used the questionnaire to recover from their run. On one occasion seven subjects remained socializing for two hours after having completed their questionnaires.

All subjects were thanked for their participation and given the researcher's office phone number where information regarding the results of the study would be available when completed. The researcher was pleasantly surprised by the enthusiasm and willingness of the participants to provide information regarding running.

Coding and Preparation for Analysis

IRFRS, LES, EIS, and background data were coded and transferred onto coding forms. The data was then punched into a file at the University of British Columbia computing centre. The FREQUENCIES routine of SPSS was used to check minimum and maximum ranges of all variables prior to the substantive analysis. Successive factor analyses were then used to refine the IRFRS. PEARSON CORR (Correlation) and ONE-WAY (Analysis of Variance) were performed to show relationships between IRFRS scale scores and selected background variables. Finally, regression equations were generated. In each equation a IRFRS scale score was dependent and various background variables were independent. Similar analytic procedures were conducted on the LES and EIS.

CHAPTER SEVEN

RESULTS

Only ten individuals of 215 approached (4.65 percent) declined to complete the questionnaire. Five apologized that they had insufficient time, three indicated that they had no interest in research of any type, and two emphasized that they "felt too sick" after their run to participate. The researcher was appreciative of the keen interest shown by nearly all participants and often surprised at their desire to discuss personal feelings and perceptions. Approximately 15 individuals asked if they could take "spare" questionnaires with them to share with a friend or family member. On a few occasions the researcher was asked when he would be back again so friends could be informed and arrange to complete the questionnaire.

In all, 205 adults participated in the study. Individuals were selected from Stanley Park Seawall (n=48), Central Park (n=46), Minoru Track (n=35), Langara Track (n=30), and Balaclava Park (n=11). Thirty-five individuals were chosen while running in various neighbourhoods in Greater Vancouver. Ninety-three of the participants were male and 112 were female. Table 3 indicates the age distribution of the participants. The average age was 34.43 (S.D.=10.08 years) with a range from 19 to 71.

Table 3 shows the distribution of subjects by Personal, Previous Athletic Participation, and Running variables. Seventy-seven of the participants were born in British Columbia, 42 in Eastern Canada, 32 in the Prairies, 21 in the United Kingdom, 12 in the United States, 7 in

TABLE 3

Socio-Demographic and Personal Characteristics
of 205 Recreational Runners

<u>Variables</u>	<u>N</u>	<u>%</u>	<u>Mean</u>	<u>S.D.</u>
<u>Personal</u>				
Sex Male	93	45.37		
Female	112	54.63		
Age			34.43	10.08
19-28	64	31.22		
29-34	56	27.32		
35-45	55	16.83		
46-71	30	14.63		
Place of Birth				
British Columbia	77	37.56		
Eastern Canada	42	20.49		
Prairies	32	15.61		
United Kingdom	21	10.24		
United States	12	5.85		
Western Europe	7	3.41		
Asia	7	3.41		
Eastern Europe	4	1.95		
Australasia	3	1.46		
Living Arrangements				
With another adult	66	32.20		
With adult and 1 or more children	50	24.39		
With 2 or more adults	42	20.49		
Alone	39	19.02		
With 1 or more children	8	3.90		
Education				
Undergraduate degree	70	34.15		
Partial degree	39	19.02		
Grade 12 or equivalent	36	17.56		
Graduate degree	27	13.17		
Vocational diploma	21	10.24		
Grade 10 or 11	11	5.37		
No formal education	1	.49		
Occupation				
Professional/Technical	93	45.37		
Managerial/Administrative	38	18.54		
Clerical/Sales	36	17.56		
Skilled worker	29	14.15		
Unskilled worker	9	4.39		
<u>Previous Athletic Participation</u>				
Competitive athlete during school years				
Yes	123	60.00		
No	82	40.00		
Competitive athlete after leaving school				
Yes	45	21.95		
No	160	78.05		
Number of team sports (prior to running)			2.37	2.38
Number of individual sports			6.69	3.73
<u>Running</u>				
Began running before moving to L.M.	27	17.76		
Began running after moving to L.M.	125	82.24		
Number of months running twice a week			26.53	19.83
Number of miles run in average week			17.40	12.55
Running location				
Neighbourhood	50	24.39		
Park	130	63.41		
Track	25	12.20		

<<t4>>

TABLE 4

Mean Initial Reasons for Running Scale Scores for 205 Participants

<u>IRFRS Factor</u>	<u>Total Possible</u>	<u>Mean Scale Score</u>	<u>S.D.</u>	<u>Item Mean</u>
I. Solitude	36	17.79	6.05	1.98
II. Personal Challenge	32	14.56	4.76	1.82
III. Socialization	24	7.42	2.30	1.24
IV. Prevention	16	8.71	3.15	2.18
V. Remedial	16	6.10	2.49	1.53
VI. Health	12	10.10	1.62	3.37

Western Europe, 7 in Asia, 4 in Eastern Europe, and 3 in Australasia. Sixty-six individuals lived with one other adult, 50 with another adult and one or more children, 42 with two or more adults, 39 lived alone and 8 lived as the only adult with a child or children.

The average participant had some post-secondary education. Forty-seven percent had completed at least an undergraduate degree. In terms of occupation, 45.37 percent were professionally trained, 18.54 percent had managerial or administrative positions, 17.56 percent were involved in clerical or sales positions, 14.15 percent were skilled workers, and 4.39 percent were unskilled.

Twenty-six percent of the participants were born in the Lower Mainland. Length of residence for those born elsewhere ranged from one year to 59 years. Of the 151 individuals born elsewhere, 125 (82.24 percent) began running after having moved to the Lower Mainland. One hundred and twenty-three (60 percent) of the subjects competed in organized sport during their school years. After leaving school, only 21.95 percent participated in organized sport. Table 3 indicates the distribution of individuals in relation to participation in team and individual sports prior to beginning to run. Of the 205 subjects, 63 (30.72 percent) did not participate in any team sports, whereas only eight (3.90 percent) did not participate in any individual sport or exercise activity. The relative frequencies of previous participation in organized sport presents a clear profile indicating that the majority of adult recreational runners were involved in significantly fewer organized group sports than individual activities. This appears consistent with the rather solitary nature of running.

The number of months a participant has been running twice a week ranged from those having recently started running (one month) to those having met the maximum criterion for selection (60 months). The average period of time an individual had run twice a week was 26.53 months (S.D.=19.83). The average distance run each week was 17.40 miles (S.D.=12.55 miles). Distances ranged from two to 80 miles. Eighty percent of the participants ran 27 or fewer miles per week. This substantiated the recreational nature of running for most participants and contributed to the validation of subject selection. Of the 205 respondents, 130 (63.41 percent) normally travelled to a park to run, 50 (24.40 percent) ran in their neighbourhood, and 25 (12.20 percent) ran on a track. Neighbourhood runners included both those who ran on streets and those who utilized parks or schools.

CHAPTER EIGHT

INITIAL REASONS FOR RUNNING SCALE SCORES

Table 4 shows the mean scale scores for each IRFS factor. Item means were calculated by dividing the mean scale score by the number of items on each factor. Although useful for illustrating individual motivational profiles, differences between IRFS scores cannot be considered highly significant because of the absence of other normative groups.

TABLE 4

Mean Initial Reasons for Running Scale Scores for 205 Participants

IRFS Factor	Total Possible	Mean Scale Score	S.D.	Item Mean
I. Solitude	36	17.79	6.05	1.98
II. Personal Challenge	32	14.56	4.76	1.82
III. Socialization	24	7.42	2.30	1.24
IV. Prevention	16	8.71	3.15	2.18
V. Remedial	16	6.10	2.49	1.53
VI. Health	12	10.10	1.62	3.37

The utility of IRFS scores is illustrated in Figure 2 which plots the motivational profiles of three individuals and compares them to the group mean. Subject A was a 46 year old widow born in the United States who moved to the Lower Mainland in May, 1980. She was employed as an interior designer and had a college degree. Subject A had never participated in organized sport and did not start running until she was 43 years old. She ran fifteen miles a week at a neighbourhood park. PERSONAL CHALLENGE, SOLITUDE, SOCIALIZATION, and REMEDIAL scores were

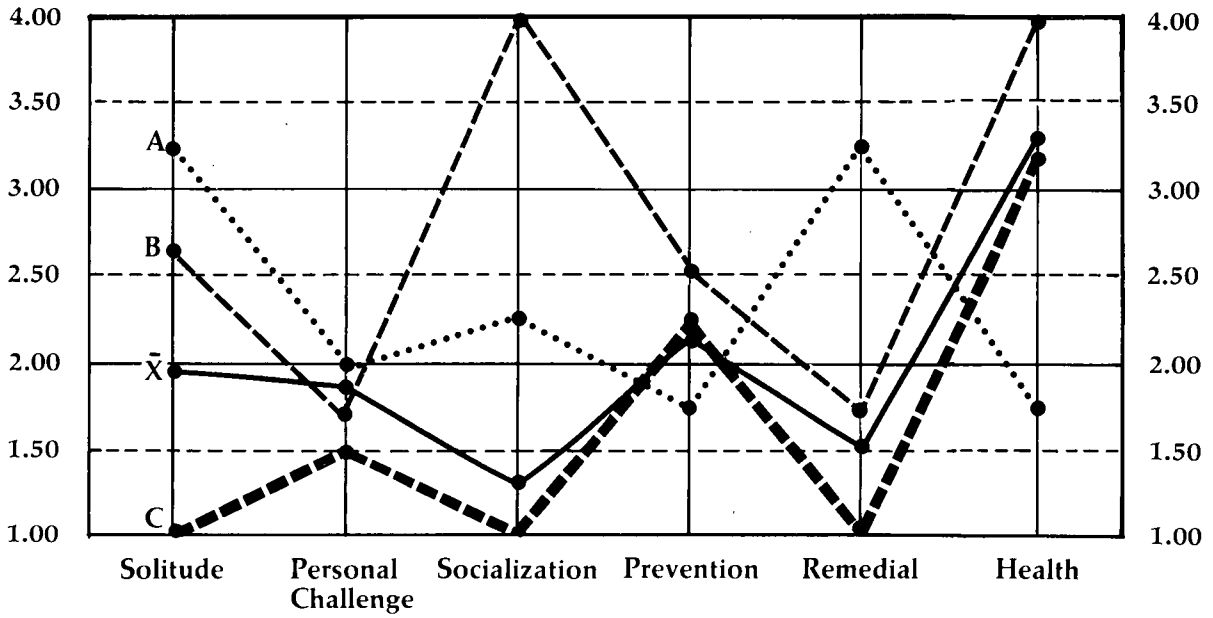


Figure 2. Motivational profiles for three participants.

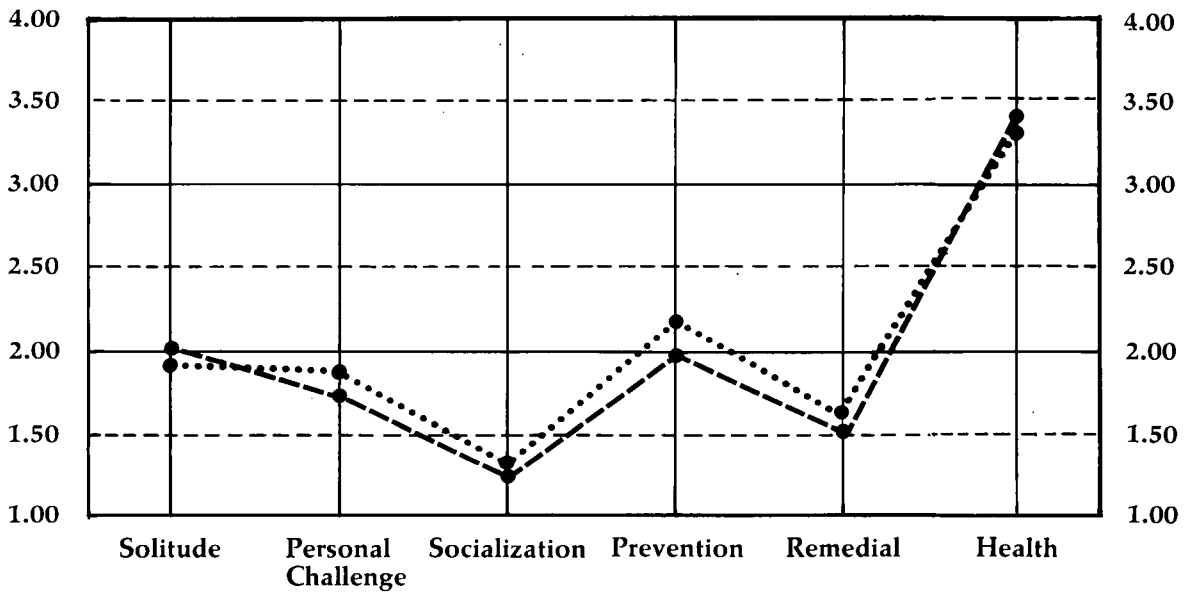


Figure 3. Motivational profiles for male and female participants.

----- = Females
 = Males

well above the norm and were the major motives in her decision to begin running. PREVENTION and HEALTH scores were below average.

Subject B was a 40 year old male who also lived alone. He was born in Vancouver, completed a graduate degree at the University of British Columbia and, at the time of the study, managed his own business. Subject B was never a competitive athlete but did participate recreationally in a variety of team and individual sports. He had been running regularly in his neighbourhood for five years and averaged five miles a week. Subject B's IRFRS scores indicated a SOCIALIZATION score which was significantly above the average. SOLITUDE and, to a lesser extent, PREVENTION and HEALTH scores were also above the norm. PERSONAL CHALLENGE and REMEDIAL scores were average.

Subject C, a 35 year old female registered nurse, was born in London, England and moved to the Lower Mainland in May, 1953. She lived with other adults and began running eight months prior to when the study was started. She usually ran at Central Park and averaged 30 miles a week. Prior to running she participated in a wide variety of individual and team sports. In terms of her motives for beginning to run, her scores on PERSONAL CHALLENGE, SOCIALIZATION, PREVENTION, and HEALTH were consistent with group norms. However, SOLITUDE, and REMEDIAL scores were well below average.

The motivational profiles of male and female subjects are plotted in Figure 3. There were no significant differences in mean IRFRS scores between male and female respondents.

Life Event Scale Scores

As determined during the preliminary analysis of LES scores, no significant qualitative differences appeared when life events were measured by recording the actual number of events experienced, the perceived magnitude of the events or whether the events were perceived as positive or negative. Therefore the number of events experienced in each of the eight categories was considered when relating life events to other variables. Table 5 shows the mean scale scores for total life events and for each LES category. Item means were calculated by dividing each mean scale score by the number of items in each category. Little significance can be attached to differences in mean LES scores because of the absence of other normative groups at this time.

For illustrative purposes mean LES scores for the 205 participants are shown in Figure 4. As indicated above, scores shown here were derived by summing responses to items that comprise each category; the category totals were then divided by the number of items to get a category mean.

LES scores, like IRFRS scores, are useful in constructing individual profiles. Figures 5 and 6 illustrate the contribution of LES scores in compiling case histories. The mean scores plotted represent subjects A, B, C, and D. Each subject has been randomly selected to select one of the four cohort groups (age 19-28, 29-34, 35-45, 46 and over).

Subject A was a 21 year old nursing student who, in the two year period prior to beginning running, experienced a significant number of HEALTH and SOCIAL events. She gained weight, became aware of her decreased fitness, lacked energy, and experienced a reminder of the

TABLE 5

Mean Life Event Scale Scores for 205 Participants

LES Category	Total Possible	Mean Scale Score	S.D.	Item Mean
I. Health	15	6.20	2.66	.41
II. Social	9	2.91	2.22	.32
III. Residence	5	1.24	1.20	.25
IV. Work	12	1.78	1.92	.15
V. Finances	8	1.12	1.30	.14
VI. Education	6	.72	1.03	.12
VII. Family	12	1.32	1.50	.11
VIII. Death	4	.31	.59	.08

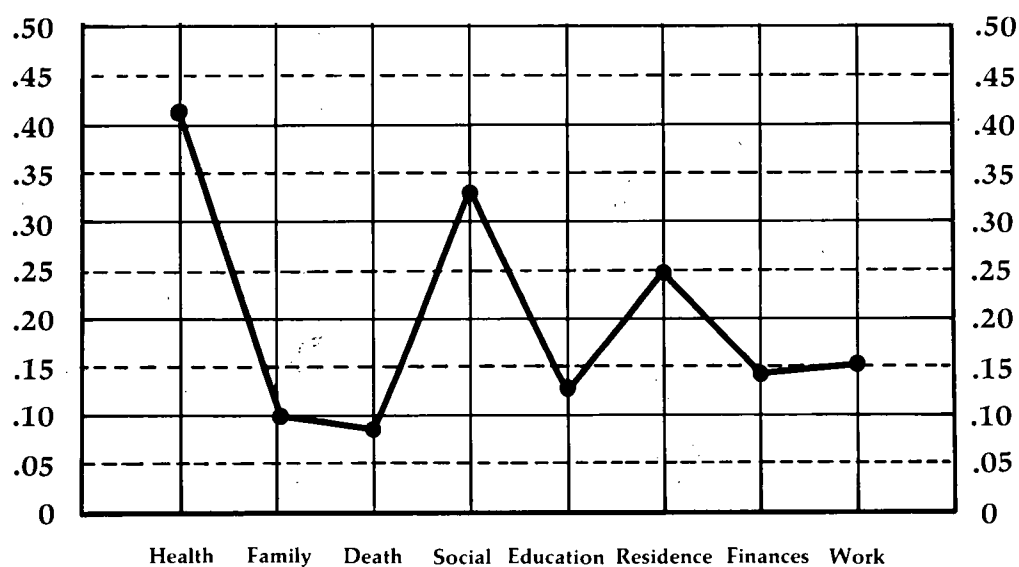


Figure 4. Mean LES scores for 205 participants



Figure 5. Life Event profiles for participants A and B.

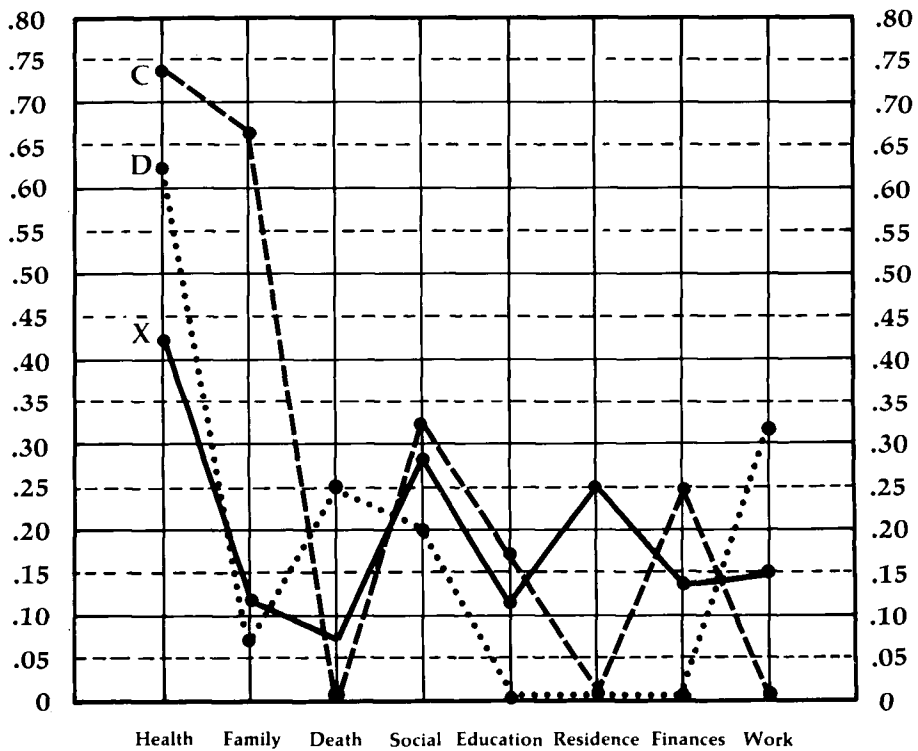


Figure 6. Life Event profiles for participants C and D.

aging process. She also experienced periods of depression and indicated an increased awareness in physical fitness and preventive medicine. From the SOCIAL category subject A acquired a new friend and indicated a change in the health of a friend. She also wished to make new acquaintances, joined a new social club, and took a vacation. Subject A also began post-secondary study and experienced a change in the number of interactions with her family.

Adult life cycle research describes the 19-28 age period as the stage of entry into the adult world. McCoy (1977) identifies "leaving the family" and "reaching out" as central developmental tasks. As with many adults in the 19-28 age group, SOCIAL events were significant in the life of subject A. Acquiring new acquaintances and participating in social activities are important aspects of young adulthood. Less direct contact with one's family and preparing for a career also represent common developmental progression in preparing for a more independent role. Subject A, like many young adults, experienced and was concerned with life events regarding her health and less physically active lifestyle. Her weight gain and decreased fitness level are common findings among young adults who have completed secondary school and are beginning careers or advanced study.

Subject B has been selected from the 29-34 age group. He was a 31 year old dentist who shared a house with two other adults. His life event scores indicated that during the two year period prior to beginning to run he became concerned about his present lifestyle and health. Subject B also indicated an increase in stress and experienced periods of depression. An increased awareness and interest in physical fitness and preventive medicine was also experienced.

Subject B experienced many major SOCIAL events during the two year period. He divorced his wife after having experienced dissatisfaction with his marriage. He felt "off-time" regarding his type of friends and wished to make new acquaintances. Significant changes in social activities and a vacation were also indicated. During this same two year interval he entered a new relationship which resulted in marriage. Of interest to the researcher, his new wife was a devoted recreational runner.

Subject B purchased and remodelled a house in which he and his new wife lived. This event precipitated two additional ones--improved living conditions and obtaining a mortgage.

Developmental theory suggests that a crisis is often experienced in the 29-34 age group. Individuals at this stage often evaluate and reappraise their present status and future prospects. This period of self-reflection is often characterized as one of questioning. Levinson (1978) suggests that the essence of the Age 30 Transition is the growing sense that change must be made soon, otherwise one will become locked into--or out of--commitment that will be more and more difficult to change.

The events experienced by subject B are consistent with those described in life cycle research. His concern about present health status and increased stress suggests a questioning of his current lifestyle. His dissatisfaction with his friends and his marriage indicates an evaluation or reappraisal of his relationships with others. Subject B's divorce could be considered as a crisis and, as suggested by Levinson (1978), subject B appears to have reworked parts of his life structure that were tentatively constructed during entry into the adult

world, and created a revised life structure that would form the basis of his next life period.

Subject C, selected from the 35-45 age group, was a 42 year old associate professor who lived in a house with other adults. During the two year period before she started running, subject C had experienced numerous significant life events. She gained weight, became "unfit," experienced a reminder of the aging process and became alarmed about her present health and lifestyle. She experienced a mental health problem, increased stress, periods of depression, and difficulty in sleeping. A fear of becoming old was also identified. During this time subject C also increased her awareness and interest in physical fitness and preventive medicine.

FAMILY events experienced were becoming pregnant, having an abortion, difficulty in raising a child, and having a child leave home. She also was affected by a negative change in the health of a family member, trouble with her in-laws, dissatisfaction with her marriage, and a feeling of being "off-time" regarding her role in the family.

SOCIAL events experienced were a desire to make new acquaintances, a vacation, and participation in an adult education program. Subject C also felt "off-time" regarding her level of education at this particular stage in her life. She experienced a substantial increase in her income and renewed a mortgage.

Recent empirical research supports the popular concept of a midlife crisis or "explosion" which often occurs during the 35-45 age period (Gould, 1978). During this stage, the adult often becomes emotionally aware that death will come and time is running out. Attempts are made to modify unsatisfying aspects of current life structure and test

elements of a new structure. The intense reexamination of this period often brings emotional upset because one is challenging the status quo--one's established life structure.

Many of the events experienced by subject C illustrate the turbulence often characterizing this stage of adult development. Her experience of health problems and increased awareness of aging appear to precipitate both a concern regarding her present lifestyle and a desire to make necessary changes for improvement. The developmental tasks of relating to one's spouse and one's children have been identified by life-cycle researchers as major challenges during this period. The SOCIAL events experienced by subject C suggest an effort to rearrange personal priorities and values and participate in new social activities.

Subject D was a 52 year old chemical engineer who lived with his children. He has been selected from the over 45 age group. Like the three other individuals described, subject D scored relatively high in HEALTH events. During the two year interval before he started running, subject D experienced a weight gain, lacked energy, and became concerned about his present health. At this time he also experienced the onset of a disease, difficulty in sleeping, fear of aging and dying, and depression. Like the three other subjects, he experienced an increased awareness and interest in physical fitness and preventive medicine.

Subject D's wife died during this time period. He also experienced problems with his in-laws. Events experienced in the SOCIAL category included a decrease in social activities and a desire to make new acquaintances. WORK related events were a job change resulting in different working conditions and responsibilities. He was also denied an anticipated promotion.

Life cycle theorists describe the over 45 age period as a time of peak productivity and creativity. Significant developmental tasks during this stage are adjusting to the realities of work, health problems, and loss of mate. Subject D's profile certainly illustrates the traumatic events of experiencing age related health problems and the loss of one's spouse. He also had to accept the reality that his employment expectations would not be attained.

Scores from the LES contribute useful information for the construction of individual profiles. An awareness of the events experienced by an individual certainly assists in the development of informative case studies. However, in the present study the purpose of quantifying life events was to examine relationships between LES scores and motives for beginning to run. Now that the LES is developed and available for future use, it would be useful to further validate the instrument by administering it to other populations. Investigation of relationships between scale scores which distinguish one individual from another would also be of interest.

External Influences Scale Scores

Table 6 shows frequencies of each item on the EIS. As indicated, the most frequent external influence is the observation of "Adults your own age or older running in the community." One hundred and forty-eight of the 205 subjects (72.20 percent) said they were influenced by this item in the two year period before they began running. The prevalence of adults of all ages and levels of fitness seen running in public serves as a stimulus or motivator for many to begin running. Although significant, this item as well as item 8, "Employee fitness promotion,"

TABLE 6

Frequency and Mean External Influence Scale Scores for 205 Participants

External Influence Item	Yes Response	Frequency	Mean
1. Adults your own age or older running in community	148	72.20	2.45
2. Participaction fitness promotion	135	65.85	2.32
3. Fitness message comparing 60 year old Swede to 30 year old Canadian	125	60.98	2.23
4. Television coverage of a running event	124	60.49	2.20
5. Magazine article related to running	120	58.54	2.19
6. Commerical advertisement employing running or fitness image	118	57.56	2.17
7. Newspaper article related to running	114	55.61	2.12
8. Book promoting health benefits of running such as <u>Aerobics</u>	95	46.34	1.94
9. Media promotion of "self-growth" (getting in touch with your body)	83	40.49	1.82
10. Individual athletic performance having great emotional impact	79	38.54	1.79
11. Television movie in which running was portrayed	75	36.59	1.75
12. Radio coverage of a running event	72	35.12	1.71
13. Celebrity endorsing fitness or running	64	31.22	1.64
14. Specific running publication such as <u>Runner's World</u>	56	27.32	1.56
15. <u>Action B.C.</u> fitness promotion	55	26.83	1.55
16. Motion picture featuring running	54	26.34	1.53
17. Employee fitness promotion	33	16.10	1.32

were not included in any of the four factors because of insufficient loadings (.40 or less). Item 9, "A commercial advertisement which employed running or fitness image" was also eliminated because it was factorially "impure," that is, it loaded on several factors.

Table 7 shows total scale scores, scale score means, and S.D.'s for each factor. Item means, calculated by dividing the mean scale score by the number of items on each factor are also indicated. Because of the absence of other groups with which to compare norms, little significance should be attached to the differences between scale score or item means. EIS scores are useful, however, in describing differences in external influence profiles between individuals. For illustrative purposes, mean EIS scores for the 205 subjects are shown in Figure 7.

More than 60 percent of the adult population were significantly influenced by the two items regarding Participaction's efforts to increase awareness in physical fitness. "Participaction fitness promotion" and "Fitness message comparing a 60 year old Swede to a 30 year old Canadian" were the second and third most frequent external influence. This finding recognizes the effectiveness of this marketing strategy.

As expected, many respondents said media coverage of running influenced them. Because this study focused on individuals who had started running within the previous five years and attempted to identify external influences which occurred in the two year period prior to their beginning to run, items such as a television movie or motion picture featuring running did not score as high as they probably would at the present time. Since the research data for this study has been collected there has been a remarkable increase in running-related movies.

TABLE 7

Mean External Influence Scale Scores for 205 Participants

EIS Factor	Total Possible	Mean Scale Score	S.D.	Item Mean
I. Model	12	6.80	2.72	.57
II. Media	15	9.80	3.50	.65
III. Movie	6	3.28	1.64	.55
IV. Participaction	6	4.56	1.58	.76

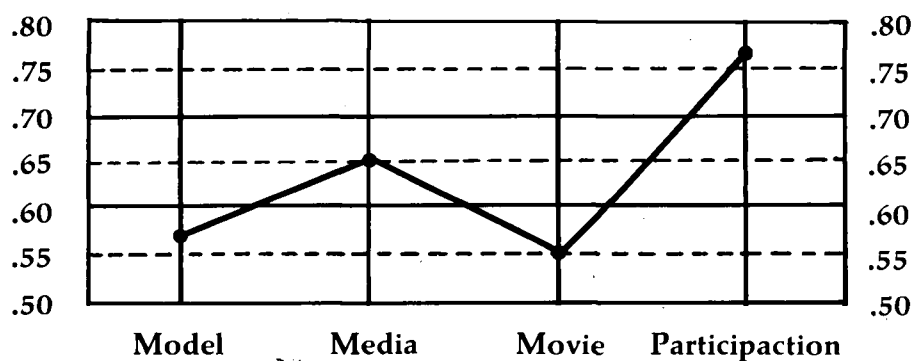


Figure 7. Mean EIS Scores for 205 participants.

Likewise, the participation of celebrities and physically disabled individuals in running and fitness programs during the past few years has probably influenced more adults and fitness programs than at any previous time. Public figures such as Terry Fox and Jane Fonda have become models to thousands of adults.

The rather low score on item 12, "Employee fitness promotion," suggests that employee fitness programs were still in their infancy during the time of the study. As a result of growing employee demands for fitness programs and an increasing awareness by employers regarding the benefits of improved employee fitness levels, it is expected that more adults are influenced by employee fitness promotion at the present time. Future study might examine the current frequency of the external influences used in the present study as well as updating items to make them more relevant. Items might also be modified for various sociodemographic populations in an attempt to identify variables which influence the person's awareness and interest in exercise or other health behaviour.

The utility of EIS scores is illustrated in Figures 8 and 9. EIS mean scores are used to construct external influence profiles for four subjects, one selected from each of the four cohort groups considered in the present study.

Subject A was a 22 year old medical stenographer who was also a part-time college student. She has lived in the Lower Mainland all her life and at the time of the study lived with two other adults. Subject A had been running approximately 12 miles a week for the past two years. She responded positively to all four external influence items on Factor I, MODEL: a celebrity or public figure who endorsed fitness or running,

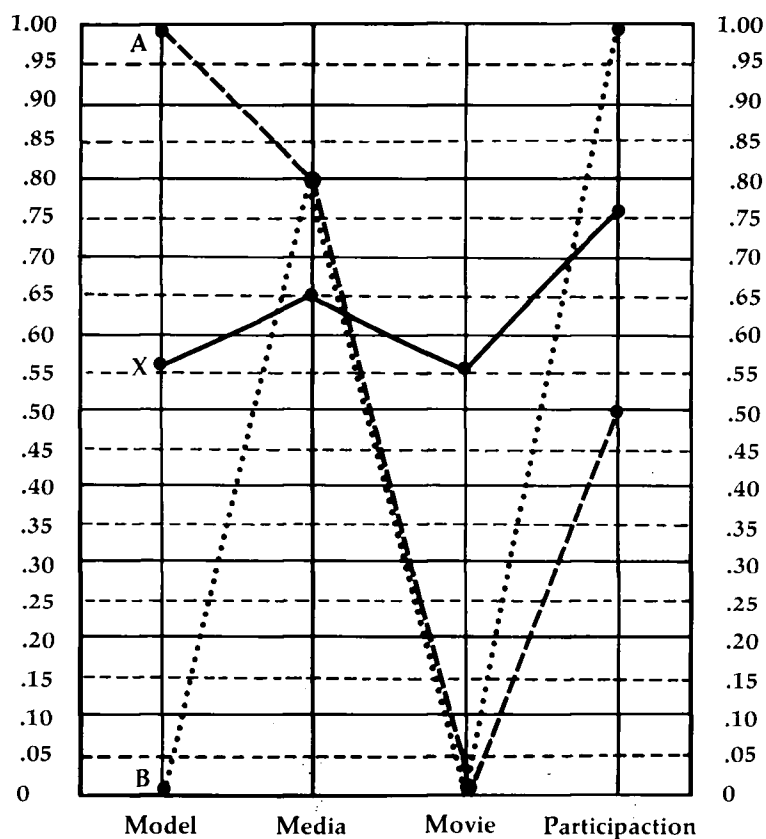


Figure 8. External Influence profiles for participants A and B.

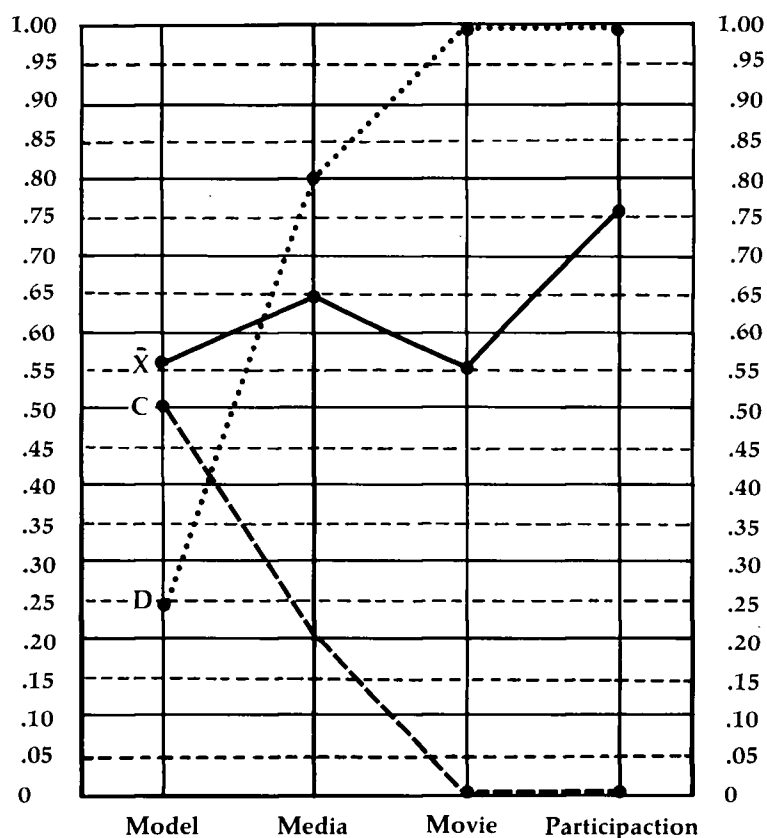


Figure 9. External Influence profiles for participants C and D.

Action BC fitness promotion, an individual athletic performance having great emotional impact, and media promotion of "self-growth." Her Factor II, MEDIA, scores were also above the norm. She was influenced by magazine, newspaper, radio, and television coverage of running. Subject A was not influenced by either item of Factor III: a motion picture or television movie which featured running. She was influenced by one Factor IV item: Participaction fitness promotion.

Subject B was a 31 year old engineer who moved to Vancouver from Hong Kong in December, 1967. He lived with other adults and began running four years ago. He ran an average of six miles a week. Subject B was not influenced by any of the MODEL items. He responded positively to four of the five MEDIA influences. The only negative score from this category was the item indicating influence of a specific running publication. He was not influenced by either a television movie or motion picture featuring running. Subject B was influenced by both Factor IV items: Participaction fitness promotion and the fitness message comparing a 60 year old Swede to a 30 year old Canadian.

Subject C was a 36 year old salesperson who lived with her husband and children. She moved to the Lower Mainland from London, England in September, 1946. Subject C, who never participated in organized sport, started running five years ago and at the time of the study, ran 14 miles a week at Minoru Park. Prior to beginning to run she said she was influenced by two items from Factor I, MODEL: a celebrity or public figure who endorsed fitness or running and an individual athletic performance having great emotional impact. She said she was also influenced by one Factor II, MEDIA, item: radio coverage of a running event.

Subject D was a 51 year old security officer who moved to Vancouver from Winnipeg in June, 1965. He lived by himself and had been running an average of 13 miles a week for the past two years. Subject D was only influenced by one item from MODEL: media promotion of "self-growth." He was influenced, however, by four of the five MEDIA items. His only negative response to this Factor was "a specific running publication such as Runner's World. He was influenced by both MOVIE items: a television movie and a motion picture featuring running. Subject D also responded positively to both PARTICIPACTION items: "Participaction fitness promotion" and the "fitness message comparing a 60 year old Swede to a 30 year old Canadian."

As the focus of this study is to predict variance in the separate IRFRS variables, factor scores from the EIS are not analyzed to measure relationships between EIS factors. Rather, EIS scores will be used in further analysis as independent variables, assisting in the explanation of variance in the reasons why adults begin running.

CHAPTER NINE

PREDICTORS OF INITIAL REASONS FOR RUNNING SCALE SCORES

Single Variable Predictors

This study concerned relationships between independent variables and reasons why adults begin running. From the onset it was considered important to examine the multivariate nature of motives for beginning to run. The procedures reported below were used to select variables for entry into regression equations used to explain variance in each IRFRS score. Although some independent variables were measured for purposes other than those of the present study, their relationship to each of the motivational orientations was calculated because of a desire to proceed inductively and to explore counter-intuitive hypotheses (see Boshier & Collins, 1982).

Where the independent variable was of a nominal type, a one-way analysis of variance was performed for each of the dependent variables. Table 8 shows the analysis regarding sex and initial reasons for

TABLE 8

Relationship Between Sex and Initial Reasons for Running Scale Scores

	Men		Women		F Ratio
	Mean	S.D.	Mean	S.D.	
SOLITUDE	17.30	5.62	18.20	6.38	1.12 (ns)
PERSONAL CHALLENGE	15.08	4.85	14.13	4.66	2.03 (ns)
SOCIALIZATION	7.46	2.67	7.38	1.95	0.06 (ns)
PREVENTION	9.33	3.29	8.19	2.94	6.92 (p<.009)
REMEDIAL	6.42	2.87	5.84	2.10	2.78 (p<.09)
HEALTH	10.09	1.52	10.11	1.71	0.01 (ns)

beginning running. Mean scores were calculated for the 93 males and 112 females and the significance of the relationships between sex and IRFRS scores determined by a one-way analysis of variance.

Independent variables of an interval type were correlated (Pearson product-moment) with each of the IRFRS scores. Table 9 shows relationships between age and life events and scores on each IRFRS factor. The following discussion will be based on the presentation of correlation coefficients and F-ratios indicating relationships between each of the variables and IRFRS scores.

SOLITUDE

Table 8 shows relationships between sex and scores on the IRFRS SOLITUDE factor. As indicated, there was no statistically significant relationship between sex and beginning running for SOLITUDE. Likewise, Table 9 shows that age was also not significantly associated with this factor.

Significant correlations appeared between several LES scores and SOLITUDE. Individuals with higher Health Events ($r=.38$, $p<.001$), Social Events ($r=.29$, $p<.001$), and Work Events ($r=.22$, $p<.001$) scores were significantly more inclined to begin running for SOLITUDE than were low scorers on these variables. Family Events ($r=.19$, $p<.003$) and Education Events ($r=.17$, $p<.009$) were also statistically significant. These findings contribute to the construct validation of the SOLITUDE factor in that individuals with a history of numerous life events are likely to be experiencing stress caused by change or disruption in status quo. This for many necessitates a time to temporarily escape from mounting pressures or demands.

TABLE 9: Relationship Between Age and Life Events and Initial Reasons for Running Scale Scores

	I		II		III		IV		V		VI	
	SOLITUDE		PERSONAL CHALLENGE		SOCIALIZATION		PREVENTION		REMEDIAL		HEALTH	
	r	p	r	p	r	p	r	p	r	p	r	p
Age	-.06	-	-.14	<.03	.003	-	.33	<.001	.09	-	-.04	-
Health Events	.38	<.001	.13	<.04	.16	<.009	.38	<.001	.33	<.001	.33	<.001
Family Events	.19	.003	-.001	-	.04	-	.03	-	.13	<.03	.15	<.02
Death Events	.10	-	.01	-	.04	-	.17	<.009	.09	-	-.09	-
Social Events	.29	<.001	.32	<.001	.14	<.03	-.06	-	.02	-	.14	<.03
Education Events	.17	<.009	.10	-	.11	-	-.08	-	-.09	-	.07	-
Residents Events	.05	-	.08	-	.03	-	-.14	<.03	-.02	-	.10	-
Finance Events	.11	-	.10	-	.22	<.001	.01	-	.16	<.01	.19	<.003
Work Events	.22	<.001	.12	<.05	.14	<.03	-.06	-	.05	0	.21	<.001
Total Events	.39	<.001	.23	<.001	.22	<.001	.09	-	.19	<.003	.31	<.001

PERSONAL CHALLENGE

Males were slightly more inclined to begin running for PERSONAL CHALLENGE reasons than were females ($F=2.03$). Younger adults had significantly higher scores on this factor than did older adults ($r=-.14$, $p<.03$). This result supports usual findings in exercise participation studies in which adult participation in regular physical activity declines as one progresses through adulthood. Social Events showed the strongest relationship to PERSONAL CHALLENGE ($r=.32$, $p<.001$). This enhances the construct validity of the PERSONAL CHALLENGE factor in that life events such as the influence of new friends or changes in social activities can be related to motives to begin running as in a personal desire to make new friends or interact with others. Adults who began running for PERSONAL CHALLENGE were also significantly more inclined to have experienced more Health ($r=.13$, $p<.04$) and Work Events ($r=.12$, $p<.05$). The Total Life Events score was also significantly related to PERSONAL CHALLENGE ($r=.23$, $p<.001$) supporting the assumption that the motives for initiating a new exercise behaviour are related to antecedent life events.

SOCIALIZATION

There were no statistically significant relationships between sex or age and beginning running for SOCIALIZATION. Suggesting that both sexes and all cohort groups respond similarly to social influences, this finding may be of special interest to those promoting or marketing exercise programs for adults.

The correlations between SOCIALIZATION and Finance Events ($r=.22$, $p<.001$) and Health Events ($r=.16$, $p<.009$) were significant. This

finding suggests that individuals who have experienced numerous changes in health or financial status are likely to be influenced by social motives in their decision to begin running. This relationship appears consistent with the a-priori assumption held by many fitness leaders that adults becoming aware of aging or experiencing improved financial status are often motivated to participate in exercise programs in an attempt to interact with others or conform to societal or peer group expectations or roles.

Social Events ($r=.14$, $p<.03$) and Work Events ($r=.14$, $p<.03$) were also significantly related to SOCIALIZATION. Support for these relationships is provided by the numerous reports of adults who identify the influence of a "significant other" or participation in new adult education or recreation programs as major factors in their decision to participate in regular fitness activities.

PREVENTION

Males were significantly more inclined to begin running for PREVENTION motives than were females ($F=6.92$, $p<.009$). The correlation between age and PREVENTION was also statistically significant ($r=.33$, $p<.001$). As the young adult progresses through the life cycle he or she often becomes more aware of decreased physical fitness, potential health problems, and attempts to prevent premature aging or future illness.

Adults with higher Death Events ($r=.17$, $p<.009$) were also more inclined to begin running for PREVENTION reasons than were those with lower ratings. Superficially, it appears that adults who have experienced the personal loss of a close friend or became aware of the death of an individual with whom they can identify, are often motivated

to take steps to insure that they do not meet a similar fate. Table 9 also shows that adults with fewer Residence Events were more likely to begin running for PREVENTION reasons ($r = -.14$, $p < .03$) than were those who had fewer Residence Events.

REMEDIAL

Males were slightly more inclined to begin running for REMEDIAL motives than were females ($F = 2.78$, $.05 < p < .09$). No statistically significant relationship appeared between age and REMEDIAL. As anticipated, adults who experienced more Health Events were more likely to begin running for REMEDIAL reasons ($r = .33$, $p < .001$). Finance Events ($r = .16$, $p < .01$) and Family Events ($r = .13$, $p < .03$) were also significantly related to REMEDIAL.

HEALTH

There were no statistically significant relationships between sex or age and beginning running for HEALTH reasons. Adults of both sexes and all cohort groups appeared to be similarly influenced by motives such as health maintenance or improvement and physical appearance. Adults scoring high in Health Events were significantly more inclined to begin running for HEALTH reasons ($r = .33$, $p < .001$). This supports an a-priori assumption that adults often begin an exercise program after becoming more aware of age related changes in appearance or health. Significant correlations also appeared between Work Events ($r = .21$, $p < .001$), Finance Events ($r = .19$, $p < .003$), Family Events ($r = .15$, $p < .02$), and Social Events ($r = .14$, $p < .03$) and HEALTH reasons. Adults experiencing more changes in these life event categories are

significantly more likely to begin running in an attempt to maintain or improve health or appearance.

As shown in Table 9, the correlations between the Total Life Event score and five of the six factors for beginning to run were statistically significant. The relationships between the Total Life Event score and SOLITUDE, PERSONAL CHALLENGE, SOCIALIZATION, and HEALTH were significant at the $p < .001$ level of confidence. Adults with higher Total Life Event scores were also significantly more inclined to begin running for REMEDIAL motives ($r = .19$, $p < .003$) than those with lower Total Life Event scores. PREVENTION was the only factor not significantly related to Total Life Event score.

Two-Way Interaction Between Sex and Age and IRFRS Scores

As indicated in the preceeding analysis, sex and age were not as useful in predicting motives for beginning running as were variables concerned with antecedent life events and external influences. However, because a major purpose of the present study was to investigate relationships between the sex and age of individuals and their reasons for beginning to run, an analysis of variance was performed in which interactions of sex and age were examined. Mean scores were calculated for the 93 males and 112 females and each of the four age categories. The significance of the relationship between sex and age and IRFRS scores was determined by F-ratio scores.

SOLITUDE

Table 10 shows the relationships between sex and age and SOLITUDE scores when considered separately and when analyzed by a two-way

interaction. As indicated, the relationships between sex and SOLITUDE ($F=.98$), age and SOLITUDE ($F=2.42$), and the two-way interaction ($F=.79$) were not statistically significant.

For illustrative purposes mean sex and cohort group scores are shown in Figure 10. As indicated, interesting differences appear between the sexes with regard to SOLITUDE scores. Both sexes score slightly below their respective total sex group average in the 19-28 category. A dramatic increase in SOLITUDE scores then occurs in both sexes during the 29-34 category resulting in above average scores. Thus, for both sexes SOLITUDE becomes a more significant motive to begin running in the 29-34 age group. A decline in SOLITUDE scores, more obvious in males ($\bar{X}=16.59$) than females ($\bar{X}=19.04$) appears during the ages 35-45. During this period, especially for men, SOLITUDE becomes less important as a reason for beginning to run. Another significant difference between the sexes regarding SOLITUDE scores occurs during the 46 and older cohort group. SOLITUDE scores increase slightly in males ($\bar{X}=17.32$) and decline sharply in females ($\bar{X}=15.91$).

As shown in Table 10, the two-way interactions between sex and age and SOLITUDE were not significant. However, Figure 10 illustrates that significant differences do indeed occur in SOLITUDE scores between specific sex-cohort groups. It appears that these differences "balance-out" when sex and age are analyzed collectively in the two-way interaction. It must be emphasized that the differences measured between males and females in Figure 10 simply represent association between specific sex-cohort groups and SOLITUDE rather than significant correlation. Thus, during specific stages of the life cycle the importance of SOLITUDE motives for beginning to run differs between

TABLE 10

Relationships Between Sex and Age and SOLITUDE Scores

	\bar{X}	F-ratio	p
Total Population (205)	17.79		
Sex		.98	ns
Males (93)	17.30		
Females (112)	18.20		
Age		2.42	.06
19-28	16.72		
29-34	19.50		
25-45	17.84		
46-	16.80		
Two-way interaction (age x sex)		.79	ns

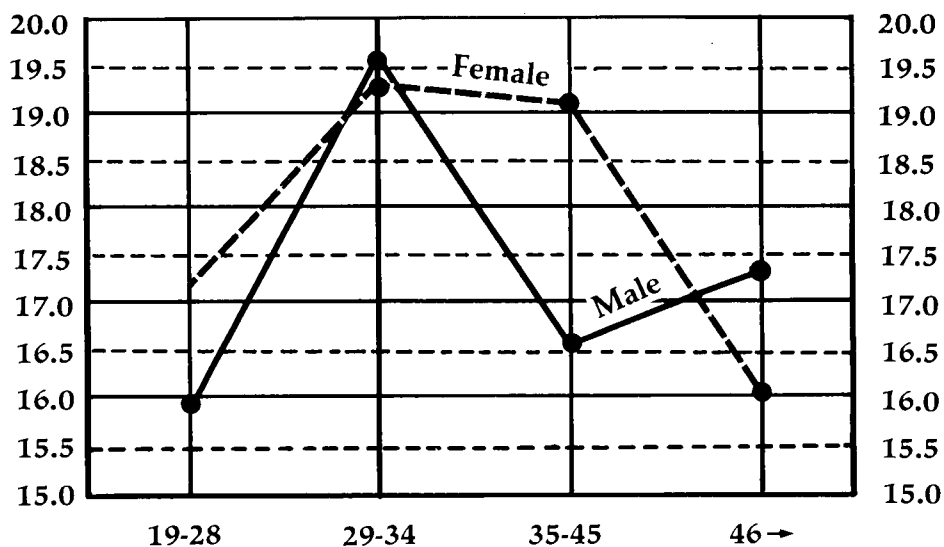


Figure 10. Mean SOLITUDE Scores of Male and Female Runners in Different Age Groups

males and females. However, this difference, as shown in previous analyses is related more to antecedent life events and external influence variables than it is to sex or age. Notwithstanding, the finding that sex-cohort differences appear in terms of initiating an exercise program for SOLITUDE reasons may be of importance to fitness and health professionals who design or manage exercise programs for adults at various stages in the life cycle.

PERSONAL CHALLENGE

Table 11 shows relationships between sex and age and PERSONAL CHALLENGE scores. As indicated, younger adults ($F=2.69$) and males ($F=3.49$) scored higher on this factor. However, when considered together in a two-way interaction, the relationship between sex and age and PERSONAL CHALLENGE was not significant.

Figure 11 shows mean sex-cohort group scores in the two-way interaction of sex and age with PERSONAL CHALLENGE. As in the previous analysis of SOLITUDE, an interesting pattern appears indicating important distinctions between the relationship of PERSONAL CHALLENGE motives and sex-cohort variables. In the 19-28 age group both sexes have identical scores ($\bar{X}=15.00$) which approximate the average of the total population. However, during ages 29-34 male scores increase dramatically ($\bar{X}=17.35$) while female scores decline slightly. While a gradual decrease in PERSONAL CHALLENGE scores was noted in both sexes in the following two age groups, males continued to score slightly above females in this factor.

The meaning of these findings is reasonably clear. Both sexes are less inclined to begin running for PERSONAL CHALLENGE motives as they

TABLE 11

Relationships Between Sex and Age and PERSONAL CHALLENGE scores

	\bar{X}	F-ratio	p
Total Population (205)	14.56		
Sex		3.49	.06
Males (93)	15.08		
Females (112)	14.13		
Age		2.69	.04
19-28	15.00		
29-34	15.50		
35-45	13.80		
46-	13.23		
Two-way interaction (age x sex)		1.16	ns

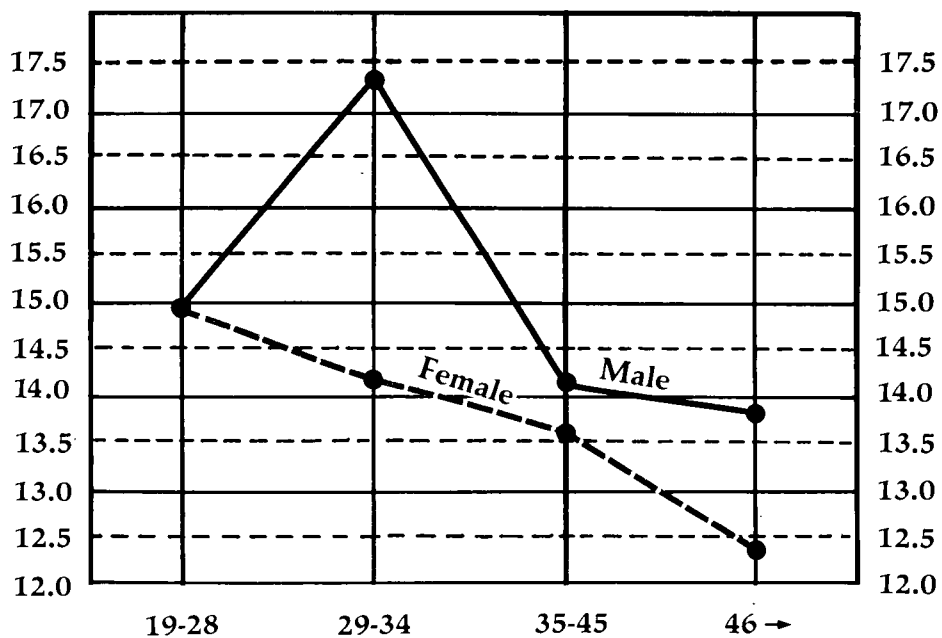


Figure 11. Mean PERSONAL CHALLENGE Scores of Male and Female Runners in Different Age Groups

age, with the exception of males in the 29-34 age group. During this stage males appear more likely to begin running for PERSONAL CHALLENGE reasons. This finding is congruent with developmental psychologists' descriptions of the "age 30 transition" in which many males initiate behavioural change in an attempt to develop a new life structure (see Levinson, 1978). The desire to attain new goals and compete successfully against oneself and others is evident during this period of change.

SOCIALIZATION

Relationships between sex and age and SOCIALIZATION are shown in Table 12. When examined separately, relationships between sex and SOCIALIZATION ($F=.06$) and age and SOCIALIZATION ($F=.47$) were not significant. Thus, beginning running for SOCIALIZATION motives appears to occur to a similar extent in both males and females of all ages. This finding supports the absence of sex and age from the SOCIALIZATION equation performed in the multivariable analysis.

The two-way interaction between sex and age and SOCIALIZATION indicates a significant relationship ($F=3.32$). This association suggests that when sex-cohort group scores are considered, males in specific age groups differ significantly from females of the same age regarding the likelihood of beginning to run for SOCIALIZATION motives.

Figure 12 illustrates sex-cohort group profiles on SOCIALIZATION scores. As indicated, in the 19-28 age group, males score slightly below ($\bar{X}=6.75$) the total population average while females score slightly above average ($\bar{X}=7.52$). SOCIALIZATION scores of both sexes show minor increases and remain similar during ages 29-34.

TABLE 12

Relationships Between Sex and Age and SOCIALIZATION Scores

	\bar{X}	F-ratio	p
Total Population (205)	7.42		
Sex		.06	ns
Male (93)	7.46		
Female (112)	7.38		
Age		.47	ns
19-28	7.23		
29-34	7.52		
35-45	7.65		
46-	7.20		
Two-way interaction (age x sex)		3.32	.02

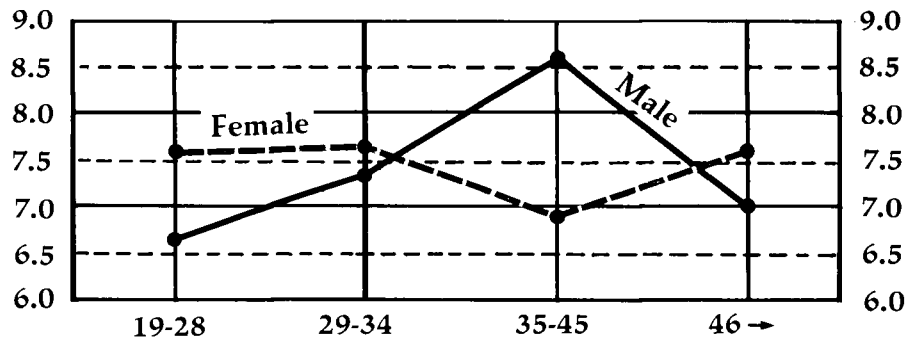


Figure 12. Mean SOCIALIZATION Scores of Male and Female Runners in Different Age Groups

During the 35-45 age period, an interesting change in sex-cohort group scores appears. Male scores increase and rise above the total population average while female scores decrease below average. SOCIALIZATION scores then decrease back below average in males and rise again to average in females during the 46+ age period. Apart from the 35-45 age group, males and females are similar in their likelihood to begin running for SOCIALIZATION reasons. During ages 35-45, males show an increased tendency to be motivated by SOCIALIZATION. Females, on the other hand, tend to be less likely to begin running for SOCIALIZATION motives during this age period than at any other age.

PREVENTION

The relationships between sex and age and PREVENTION were the most significant of all the sex factors. As shown in Table 13, sex ($F=3.70$) and age ($F=7.85$) were significantly related to PREVENTION scores. The two-way interaction also yielded significant results ($F=2.59$). These findings are consistent with the results obtained from the regression equation on PREVENTION in that males are shown to be more likely to begin running for Prevention motives than are females. Also, PREVENTION scores increase with age, that is, older adults score higher on this factor than do younger adults.

Mean sex-cohort group PREVENTION scores in the two-way interaction are shown in Figure 13. Both sexes score below the total population average in the 19-28 age group. During ages 29-34 a dramatic increase in male scores ($\bar{X}=9.61$) occurs while female scores decrease slightly ($\bar{X}=7.61$). PREVENTION scores remain stable in males ($\bar{X}=9.41$) and rise sharply in females ($\bar{X}=9.21$) in age group 35-45. The 46+ age category

TABLE 13

Relationship Between Sex and Age and PREVENTION Scores

	\bar{X}	F-ratio	p
Total Population (205)	8.71		
Sex		3.70	.05
Male (93)	9.33		
Female (112)	8.19		
Age		7.85	.001
19-28	7.50		
29-34	8.43		
35-45	9.31		
46-	10.70		
Two-way Interaction (age x sex)		2.59	.05

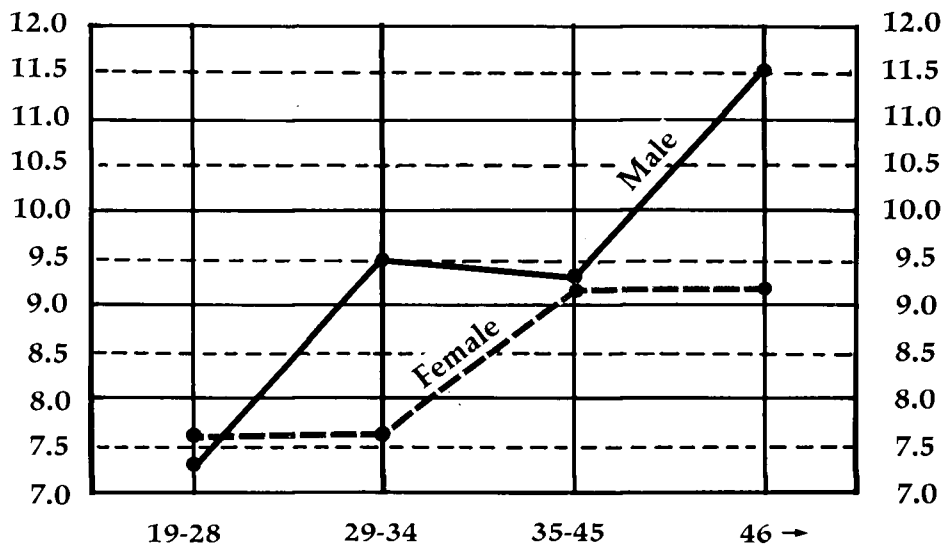


Figure 13. Mean PREVENTION Scores of Male and Female Runners in Different Age Groups

shows another significant increase in PREVENTION scores in males ($\bar{X}=11.58$) and rather stable scores in females ($\bar{X}=9.18$).

REMEDIAL

Table 14 shows the relationships between sex and age and REMEDIAL scores. As indicated, the relationships between sex and REMEDIAL ($F=1.93$) age and REMEDIAL ($F=.79$), and the two-way interaction ($F=.29$) were not significant.

Figure 14 also clearly illustrates the weak association between sex-cohort groups and REMEDIAL. Although males tended to score slightly higher on this factor than females, sex and age were poor predictors of the REMEDIAL motive. Thus, adults who began to run for REMEDIAL reasons such as to follow the advise of a physician or to help control a specific health problem, may be of any age and are slightly more likely to be men than women.

HEALTH

Relationships between sex and age and HEALTH are shown in Table 15. Consistent with the findings of the multivariate analysis on HEALTH, the relationships between sex and HEALTH ($F=.01$) and age and HEALTH ($F=.41$) were not significant. The two-way interaction also indicated non-significance ($F=.89$).

The lack of association between sex-cohort groups is shown in Figure 15. Males and females of any age were equally likely to begin running for HEALTH motives. Reasons for running such as to improve appearance, to maintain good health, or attain optimal health were not related to the sex or age of the individual.

TABLE 14

Relationships Between Sex and Age and REMEDIAL Scores

	\bar{X}	F-ratio	p
Total Population	6.10		
Sex		1.93	ns
Males	6.43		
Females	5.84		
Age		.79	ns
19-28	5.78		
29-34	6.13		
35-45	6.09		
46-	6.77		
Two-way Interaction (age x sex)		.29	ns

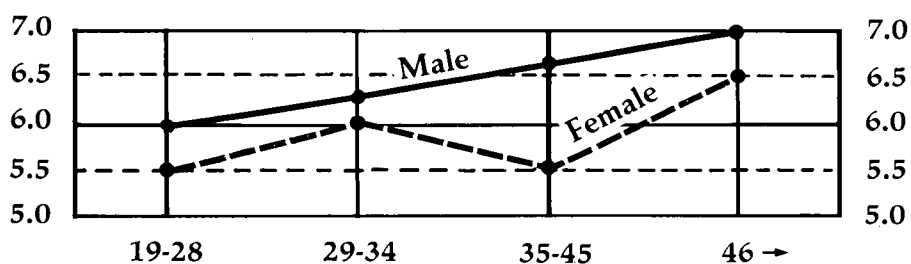


Figure 14. Mean REMEDIAL Scores of Male and Female Runners in Different Age Groups

TABLE 15

Relationships Between Sex and Age and HEALTH Scores

	\bar{X}	F-ratio	p
Total Population (205)	10.10		
Sex		.01	ns
Males	10.09		
Females	10.11		
Age		.41	ns
19-28	10.11		
29-34	10.25		
35-45	9.91		
45-	10.13		
Two-way Interaction (age x sex)		.89	ns

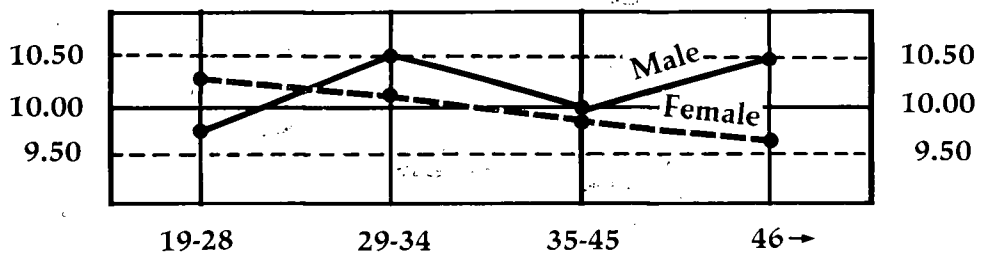


Figure 15. Mean HEALTH Scores of Male and Female Runners in Different Age Groups

Multivariate Predictors of IRFRS Scores

The foregoing analysis showed relationships between age, sex and reasons for running. While several of the figures displayed theoretically suggestive results it appeared that age and sex were not very powerful predictors of all the reasons for running. They appeared to explain more of the variance in SOCIALIZATION and PREVENTION than in HEALTH. But, as the theory buttressing this work spoke of life events and external influences as correlates of reasons for running, it was necessary to examine the extent to which these variables, in association with age, sex, and other personal characteristics, would explain variance in each of the dependent variables.

A preliminary examination of the correlation matrices for each dependent variable suggested that, in each instance some of the personal characteristic, life event, and external influence variables were intercorrelated. Thus, it was decided to enter them into a series of regression equations predicting variance in running for SOLITUDE, PERSONAL CHALLENGE, SOCIALIZATION, PREVENTION, REMEDIAL, and HEALTH reasons. With regard to intercorrelations, adults having more formal education were significantly less likely to be influenced by the media in their decision to begin running than were less educated adults. This situation is predictable and, as emphasized by Boshier:

it buttresses arguments concerning the need to do multi- rather than bivariate analyses. Few phenomena stem from the influence of one variable. Most human behaviour stems from interactions of variables. Multivariate analyses are used to disentangle these interactions and show the extent to which variance in a dependent variable stems from the "partial" or "joint" effect of independent variables. (1983, p. 124)

Sixteen of the independent variables were entered into regression equations designed to predict variance in IRFRS scores. As outlined by

Boshier (1983), the decision to retain or discard a variable for regression analyses was based upon the following criteria:

1. Its simple correlation with each of the IRFRS scores.
2. Its theoretical significance.
3. Its relationship to other independent variables.
4. Its apparent relevance to adult participants and exercise or health professionals.
5. A desire to eliminate redundant predictors.

The following variables were entered into each of the six regression equations used to explain variance in IRFRS scores:

Personal Characteristics

- Age
- Sex
- Education
- Occupation

Life Events

- Health
- Family
- Death
- Social
- Education
- Residence
- Finance
- Work

External Influences

- Model
- Media
- Movie
- Participaction

Any of the above independent variables was eligible to enter the equation generated to explain each of the IRFRS scores. However, in order for a variable to enter the equation it had to explain at least five percent of the variance. This criterion was also selected to keep equations as parsimonious as possible. Two variables entered the first

equation and explained 20 percent of the variance in SOLITUDE; two variables entered the PERSONAL CHALLENGE equation for a multiple r of .37 (14 percent of variance explained); two variables explained 11 percent of the SOCIALIZATION variance; five variables entered the PREVENTION equation for a multiple r of .56 (32 percent of variance explained); three variables explained 16 percent of the variance in REMEDIAL, while two variables entered the HEALTH equation and explained 13 percent of the variance.

Regression Equations Predicting IRFRS Scores

SOLITUDE

Table 16 shows the two variables that combined to explain 20 percent of the variance in SOLITUDE scores. At the cut-off point for entry into the SOLITUDE equation none of the 14 remaining variables had partial r 's greater than .12. Had a more liberal criterion been adopted the next variables to enter would have been MODEL influences, Work Events, and MEDIA influences. Note the absence of age and sex from the equation.

The 205 adult runners had a mean Health Event score of 6.20 and a mean Social Event score of 2.91. Considering the coding system and the sign in front of each beta weight this table shows that individuals with the highest SOLITUDE scores were more inclined than those with low SOLITUDE scores to have experienced more Health and Social events prior to beginning running. Thus, adults having experienced a significant weight gain or decreased fitness level were more motivated by SOLITUDE reasons than those not having experienced similar health events. This

TABLE 16

Multivariate Predictors of Initial Reasons for Running Scale Scores

Variable	\bar{X}	S.D.	SOLITUDE Scores			
			Multiple r	Simple r	Beta (final)	F-ratio (at entry)
Health Events	6.20	2.66	.38	.38	.35	35.15
Social Events	2.91	2.22	.45	.29	.23	25.40

relationship supports observations made by adult exercise and fitness leaders that the overweight or "unfit" are often self-conscious regarding their health or fitness status and feel less conspicuous or embarrassed when exercising alone rather than in the presence of others.

High scorers on this factor also experienced increased stress or periods of depression. Certainly, running for SOLITUDE appears a reasonable strategy in assisting individuals in their attempts to temporarily escape daily pressures or dissatisfaction. Awareness of the relationship between Health events and initiating an exercise program for SOLITUDE may be of importance to health professionals counselling adults wanting to modify behaviour.

PERSONAL CHALLENGE

Table 17 shows the two variables that entered the PERSONAL CHALLENGE equation. The most powerful separate effect was having experienced Social events (beta=.32). The significant relationship between the Social Event variable and PERSONAL CHALLENGE buttresses the construct validation of this factor. Individuals having experienced a deficit in their social interactions were more likely to begin running to make new acquaintances or increase their social interactions than are

TABLE 17

Multivariate Predictors of Initial Reasons for Running Scale Scores

PERSONAL CHALLENGE Scores						
Variable	\bar{X}	S.D.	Multiple r	Simple r	Beta (final)	F-ratio (at entry)
Social events	2.91	2.22	.32	.32	.37	23.08
Sex	1.55	.50	.37	-.10	-.20	16.22

those having experienced greater satisfaction with their social interactions. In view of the fact that adults are purported to be problem oriented (see Knowles, 1980), and are motivated to participate in the learning of new behaviours for reasons consistent with their life-space (see Boshier, 1980), it was not surprising to find that individuals dissatisfied with their present social "condition" often began running for PERSONAL CHALLENGE.

The influence of a new friend or participation in a new social group or recreational program may "trigger" an adult's decision to change or adopt a new behaviour. It seems reasonable that some individuals become motivated to run because of a newly developed interest or curiosity in running fostered by a "significant other" or "others." Table 17 also shows that males were more likely to begin running for PERSONAL CHALLENGE reasons than were females.

Had a more liberal criterion been adopted the next three variables to enter the PERSONAL CHALLENGE equation would have been MOVIE influence, education, and MEDIA influences. However, after step two (sex) none of the remaining variables had a partial r greater than .13.

SOCIALIZATION

Two variables generated a multiple r of .33 for SOCIALIZATION scores. The amount of variance explained on this factor was the lowest of the six factors. Table 18 shows the variables, their simple r 's, and beta weights. Individuals with the highest SOCIALIZATION scores were more influenced by movies featuring running and had experienced more financial events than those with lower scores on this factor. This finding suggests that through the media of television and motion pictures, many adults have become aware of the image and social status associated with running.

In view of the fact that only about 11 percent of the variance in SOCIALIZATION was explained by the two variables that entered the equation, their effects should not be exaggerated. Had a more liberal criterion been adopted, the next variable to enter the SOCIALIZATION equation would have been the influence of a model.

PREVENTION

Table 19 shows the configuration of variables most closely associated with PREVENTION scores. It is important to remember that this table indicates how variable clusters and interactions were associated with PREVENTION scores.

Having regard to the coding system and the sign in front of each beta weight, Table 19 shows that adults with the highest PREVENTION scores were more inclined than those with low (PREVENTION) scores to have experienced health events, to be older, to have been influenced by the media, to have experienced fewer work events and to be male. The most powerful single effect was having experienced health events prior

TABLE 18

Multivariate Predictors of Initial Reasons for Running Scale Scores

SOCIALIZATION Scores						
Variable	\bar{X}	S.D.	Multiple r	Simple r	Beta (final)	F-ratio (at entry)
Movie Influence	3.29	1.64	.24	.24	.25	12.85
Finance Events	1.12	1.30	.33	.22	.22	12.25

TABLE 19

Multivariate Predictors of Initial Reasons for Running Scale Scores

PREVENTION Scores						
Variable	\bar{X}	S.D.	Multiple r	Simple r	Beta (final)	F-ratio (at entry)
Health Events	6.20	2.66	.38	.38	.37	34.70
Age	34.43	10.08	.48	.33	.26	29.89
Media Influence	9.80	3.50	.51	.20	.21	23.80
Work Events	1.78	1.92	.53	-.06	-.20	19.97
Sex	1.55	.50	.56	-.18	-.18	18.38

to running ($\beta = .38$). The meaning of this relationship is reasonably clear and contributes to the construct validity of this factor. It would appear that individuals becoming aware of decreased health and fitness through aging or lifestyle related factors may be motivated to begin running in an attempt to prevent unnecessary illness or premature death. As a result of increased awareness and interest in the relationship between lifestyle and health status, many adults are motivated to take more responsibility for their own health.

With regard to PREVENTION, it is also pertinent to note the influence of media as one of the variables in the equation. Many adults report that they first became aware of the relationship between regular physical activity and the prevention of "hypokinetic disease" through various media channels.

REMEDIAL

The three variables listed in Table 20 generated a multiple r of .39 for REMEDIAL scores. Although the combination of variables shown explained only 16 percent of the variance, the meaning of this equation was reasonably clear and contributed to the construct validity of the factor. Adults with the highest REMEDIAL scores had experienced more health events prior to running, were in the higher trained occupations, and were more likely to be male than female than those with lower REMEDIAL scores. Individuals scoring high on this factor were motivated to begin running on the advice of a health professional. Running was recommended as an activity which would facilitate the control and management of a specific health problem such as obesity, cardiovascular disease, or chronic low back pain.

TABLE 20

Multivariate Predictors of Initial Reasons for Running Scale Scores

Variable	\bar{X}	S.D.	REMEDIAL Scores			
			Multiple r	Simple r	Beta (final)	F-ratio (at entry)
Health Events	6.20	2.66	.33	.33	.36	25.00
Occupation	2.14	1.26	.37	.13	.16	16.03
Sex	1.55	.50	.39	-.12	-.14	12.36

Having experienced financial events prior to beginning to run would have been the next variable into the REMEDIAL equation had a more liberal criterion for entry been adopted.

HEALTH

Table 21 shows the two variables that entered the HEALTH equation. As in the other two health related factors, PREVENTION and REMEDIAL, the most powerful separate effect was having experienced health events prior to running. It appears that some individuals in relatively good health are motivated to maintain or improve their health or appearance following the experience of an aging or health related event. Rather than being deficiency motivated, in which behavioural change represents an attempt to "lessen the gap" between present and desired future health status, some individuals appear "growth" motivated and strive to attain optimal health or fitness status and maximum personal fulfillment.

Adults scoring high on the HEALTH factor are also more likely to have experienced numerous work events than are those having lower scores in this variable. Had a more liberal criterion for entry into the equation been adopted the next four variables to enter would have been

TABLE 21

Multivariate Predictors of Initial Reasons for Running Scales Scores

Variable	\bar{X}	S.D.	HEALTH Scores			
			Multiple r	Simple r	Beta (final)	F-ratio (at entry)
Health Events	6.20	2.66	.33	.33	.30	24.61
Work Events	1.78	1.92	.36	.21	.14	14.62

Death event, Media influence, Participaction influence, and education. Thus, individuals with the highest HEALTH scores were more inclined than those with lower (HEALTH) scores to not have experienced the loss through death of someone "close," to have been influenced by the media and Participaction fitness promotion, and to have completed more formal education.

CHAPTER TEN

CONCLUSIONS

The Initial Reasons For Running Scale

It was concluded that the IRFRS is psychometrically and psychologically sound and may be useful for application in other fitness and recreational settings. The items were inductively derived, represent major "orientations" that impel adults into self-directed running programs, and appear relevant for both sexes. The six factors--SOLITUDE, PERSONAL CHALLENGE, SOCIALIZATION, PREVENTION, REMEDIAL, and HEALTH--all measured factors which explained why adults begin to run.

The solution used to generate the six factors was psychometrically satisfying. Items incorporated into Factor I had loadings that ranged from .46 to .83; in Factor II loadings ranged from .43 to .81; in Factor III they ranged from .53 to .72; in Factor IV from .55 to .74; in Factor V from .42 to .70; and in Factor VI from .45 to .67. The solution was pure as no item had a high loading on more than one factor. The factors were internally consistent and easy to interpret.

Together the six factors accounted for 52.13 percent of the total variance. Individually, Factor I accounted for 20.23 percent of the variance, Factor II 8.37 percent, Factor III 7.54 percent, Factor IV 7.26 percent, Factor V 4.46 percent, and Factor VI 4.28 percent.

Factors IV, V, and VI are all concerned with physical health motives and if their scores were considered together, they would yield a total of 16.00. In this view the two most significant motivational

orientations of adult runners are the psychological factor, SOLITUDE, explaining 20.23 percent of variance and the physical health factors explaining 16.00 percent of the variance.

Relationships between IRFRS Scores and Participant Variables

After examining a variety of conceptual approaches to the "reasons for beginning running" problem it was decided that, in this initial study, the focus would be on participant variables as predictors of motives for beginning to run. It was considered essential to understand what "motivates" adults to begin running, and variables associated with motivational orientations, in order to assist adults in their self-directed attempts to modify exercise or health behaviours. By identifying and examining personal characteristics and antecedent experiences it was hypothesized that behavioural consequences might be predicted. That is, in order to understand why an individual began to run at a specific time in the life cycle, one must consider participant variables which "precipitated" the adoption of this new behaviour.

Table 22 shows IRFRS factors and participant variables that entered regression equations generated for each factor. Recall that the same personal characteristics, life events, and external influences were eligible to enter each equation. Thus, of the four personal characteristic variables (sex, age, etc.), three were eligible to enter the SOLITUDE, PERSONAL CHALLENGE, SOCIALIZATION, PREVENTION, REMEDIAL, and HEALTH equations. Variables were entered in a stepwise fashion until less than five percent of the variance was being accounted for. When examining Table 22 it must be remembered that the variables listed each accounted for variance in IRFRS scores when combined with other

TABLE 22

Type of Variables Entering Regression Equations to
Predict Initial Reasons for Running Scale Score

	I Solitude	II Personal Challenge	III Social- ization	IV Prevention	V Remedial	VI Health
I. Personal Characteristics (Total = 4) (No. eligible = 3)		Sex		Sex Age	Sex Occupation	
II. Life Events (Total = 8)	Health Events Social Events	Social Events	Finance Events	Health Events Work Events	Health Events	Health Events Work Events
III. External Influences			Movie Influences	Media Influences		

variables already in, or about to enter a regression equation. Thus, they were not listed in this table because they had a "separate" effect on IRFRS scores (such as revealed through a simple r or F -ratio) but because they contributed to the combined effect of a group of independent variables. Their separate contribution is indicated in the beta weights shown in tables containing statistics related to each of the regression equations.

The eligible personal characteristics variables were sex, age, and occupation. The eligible life events variables were Health events, Social events, Finance events, and Work events. The eligible external influences were MOVIE influence and MEDIA influence. Two significant conclusions arose from Table 22. The first concerned the consistent influence of life event variables on IRFRS scores. Having experienced specific life events prior to beginning running was the only variable to meet the criterion for entry into each regression equation.

This was an important finding as it supports the findings of previous studies which indicate a strong relationship between the experiencing of antecedent developmental changes during adulthood and the adoption of new behaviour as a response (Lowenthal et al., 1975; Levinson, 1978; Aslanian & Brickell, 1980). From another perspective, the significant correlation between Total Life Event score and reasons for beginning to run, supports the use of scales such as the Social Readjustment Scale devised by Holmes and Rahe (1974) which employ a quantitative total life stress score rather than attempting to provide a qualitative life stress score which indicates the individual's perception of a specific stressful event.

This finding also supports the theoretical framework of this study--that the reasons why adults begin to run are related to the configuration of events experienced by individuals prior to running. Health events were especially significant. It was the most powerful predictor of SOLITUDE ($\beta=.35$), PREVENTION ($\beta=.37$), REMEDIAL ($\beta=.36$), and HEALTH ($\beta=.30$). On each of the factors the beta weights were positive; thus, individuals having experienced health events had a higher score on the factor than did those not having experienced health events. Life event variables were also significant in the two factors in which health events was not a significant factor. Social events was the most powerful predictor of PERSONAL CHALLENGE ($\beta=.37$) and finance events was a powerful predictor of SOCIALIZATION ($\beta=.22$).

The second conclusion stemming from Table 22 is that personal characteristics and external influences were not particularly powerful predictors of motives for beginning to run. Especially noteworthy are the relatively weak relationships between sex and age and IRFRS factors. Sex did not meet the criterion for entry into SOLITUDE, SOCIALIZATION, and HEALTH. It was, however, a moderately powerful predictor of PERSONAL CHALLENGE ($\beta=-.20$), PREVENTION ($\beta=-.18$), and REMEDIAL ($\beta=-.14$). Thus, males scored higher on these factors than did females. When examined as a predictor of IRFRS scores, age failed to meet the entry criterion for SOLITUDE, PERSONAL CHALLENGE, SOCIALIZATION, REMEDIAL, and HEALTH. However, it was a moderately powerful predictor of PREVENTION ($\beta=.26$) indicating that older adults had higher scores on PREVENTION than did younger adults.

The variables composing the SOLITUDE equation reached a multiple r of .45. As shown in Table 16, Health events and Social events explained 20.25 percent of the variance in this factor. Note the absence of any personal characteristics or external influences variables. The relationships between SOLITUDE and specific life events appear to support the a-priori assumption held by many fitness leaders that many adults begin individualized or solitary fitness programs in response to upsetting events or crises. That is, the time period required to complete a run provides the individual solitude or escape from the boredom of daily routine or unexpected worry. For some, running may provide relaxation and for others it may serve as the time period when one sorts out personal problems or contemplates future decisions.

With regard to PERSONAL CHALLENGE, the best predictors were Social events ($\beta=.37$) and sex ($\beta=-.20$). Thus, one personal characteristics variable and one life events variable entered the equation. External influences variables were poor predictors of PERSONAL CHALLENGE. The multiple r for this factor was .37 (13.69 percent of the variance explained).

SOCIALIZATION departed from the pattern that emerged in the other equations in that its best predictor was not a life event variable. The most powerful separate effect on SOCIALIZATION was MOVIE influence ($\beta=.25$). However, Finance events ($\beta=.22$) was the next best predictor. Note the absence of all personal characteristics variables. The multiple r for SOCIALIZATION was .33 explaining 10.89 percent of the variance.

Table 19 shows the configuration of variables composing the PREVENTION equation. The variables reached a multiple r of .56 and explained 31.36 percent of the variance. The most powerful contribution stemmed from Health events scores ($\text{beta}=.37$). Other significant predictors of PREVENTION were age ($\text{beta}=.26$), MEDIA influences ($\text{beta}=.21$), Work events ($\text{beta}=-.20$), and sex ($\text{beta}=-.18$).

Researchers have recently examined the interaction between health behaviour change and mass media management in terms of the stages that are required to move the target population from initial awareness of, and interest in, the problem to the adoption and maintenance of the advocated attitudes or behaviour (see Davidson & Davidson, 1980). By providing relevant information and an initial model, the media facilitates the modification of exercise behaviour. Thus, by "self-cueing" an individual may begin an individualized running program in an attempt to prevent illness or premature aging.

It is often reported that one of the most common events triggering the decision to initiate a new exercise behaviour in order to prevent the loss of physical fitness is the realization that one is aging (see Aslanian & Brickell, 1982). Often associated with this realization is the awareness that poor lifestyle habits that had little effect on one's energy and appearance at a younger age are taking their toll at an older age. The association between aging and PREVENTION becomes even more pertinent as the population ages and more adults engage in regular physical activity in an attempt to prevent lifestyle related health problems.

It was no surprise to find that males were more likely to begin running for PREVENTION motives than were females. The greater incidence

of heart disease and earlier mortality rates of males in our society challenge males to initiate action to prevent premature death and lifestyle related illness.

As indicated, two of the variables in this equation were life events variables, two were personal characteristics variables, and one was an external influences variable.

The best predictors for REMEDIAL were Health events ($\beta=.36$), occupation ($\beta=.16$), and sex ($\beta=-.14$). The multiple r was .39 (15.21 percent of the variance explained). All external influences variables failed to meet the entry criterion for the equation. The most powerful contributions to the HEALTH equation were Health events ($\beta=.30$) and Work events ($\beta=.14$). Note that no personal characteristics or external influences variables entered the equation. The multiple r for HEALTH was .36 indicating that 12.96 of the variance had been accounted for.

The regression equations explained 20.25 percent of the SOLITUDE variance, 13.69 percent of the variance in PERSONAL CHALLENGE, 10.89 percent of variance in SOCIALIZATION, 31.36 percent of the variance in PREVENTION, 15.21 percent of the variance in REMEDIAL, and 12.96 percent of the variance in HEALTH. Some of these regression equations were of great theoretical interest but even for the PREVENTION factor, 69 percent of the variance was unexplained. Had the criterion for entry into this and the other equations been lowered, more variance could have been explained. However, each of the new variables would explain only miniscule amount of variance in IRFRS scores. Thus, it was concluded that, while on most factors having experienced life events prior to running appears to be more related to reasons for beginning to run than

other types of variables, motivational orientations were largely independent of the variables studied here. This replicated the dominant finding in the general adult education motivational orientation literature (see Boshier & Collins, 1982).

Relationships between Sex-Cohort Groups and IRFRS Scores

In order to further examine the relationships between the sex and age of an individual and reasons for beginning to run, a two-way analysis of variance was performed. Each factor was analyzed to show relationships between specific sex-cohort groups and motives for beginning running. Interesting differences appeared between the combined results of age and sex in the total populations of 93 males and 112 females and the results in specific sex-cohort groups. The significance of the associations between sex and age and IRFRS scores is indicated by the p levels shown in tables containing statistics related to the two-way analyses of variance.

In several instances, important differences appeared in the two-way analysis of variance between total populations of males and females and specific sex-cohort groups. That is, on some factors, significant sex-cohort distinctions which were not evident in the initial two-way interactions became obvious when adults of the same sex were divided into cohort groups and their scores compared. For instance, a two-way interaction between sex and age and SOLITUDE yielded non-significant results. However, as indicated in Figure 10, SOLITUDE was shown to be a much stronger motivator to begin running in males than in females during the ages 35-45. SOLITUDE scores were also noticeably higher in males than females in the 46 and older cohort group.

With regard to PERSONAL CHALLENGE, sex ($p < .06$) and age ($p < .04$) were significantly related when considered individually. However, in a two-way analysis of variance the combined relationship was non-significant. Figure 11 shows that although males and females scored similarly in most stages of the life cycle, an important distinction appeared in the 29-34 cohort groups. Males were shown to be much more likely to begin running for PERSONAL CHALLENGE motives than were females during this specific stage of development.

When examined separately the relationships between sex and age and SOCIALIZATION were non-significant. However, as shown in Table 12, the two-way analysis of variance indicated a significant relationship ($p < .02$). Thus, an interaction between sex and age occurred resulting in important differences regarding males and females of differing ages beginning to run for SOCIALIZATION motives. Figure 12 illustrates higher SOCIALIZATION scores for males than females during ages 35-45. Also, SOCIALIZATION increased in importance in females in the 46 and older cohort group, while it declined in males during the same age period.

The strongest relationships between sex and age and motives for beginning running appeared in PREVENTION. Individually, sex ($p < .05$) and age ($p < .001$) were both significantly related to this factor. The results of the two-way analysis of variance shown in Figure 13 also indicate significant relationships between sex-cohort groups and PREVENTION. Males were shown to be more likely to begin running for PREVENTION than were females. Also, older adults scored higher on this factor than did younger adults. Considering sex-cohort differences ($p < .05$), male scores increased dramatically during ages 29-34, while

females showed a similar increase during ages 35-45. PREVENTION scores also increased significantly in males in the 46+ cohort group while they remained stable in females.

The dramatic increases in PREVENTION scores found in the 29-34 and 46+ age groups is of importance to those providing education or remediation for adults. These stages of development may represent "teachable moments" when male adults might be most receptive to programs promoting the learning of new health or exercise behaviours.

Table 14 shows that both separate and interaction relationships between sex and age and REMEDIAL were not statistically significant. Although males were shown to be slightly more inclined to begin running for REMEDIAL reasons than were females, sex and age were not strongly associated with beginning to run for REMEDIAL reasons. Likewise, sex and age were not significantly related to HEALTH. That is, males and females of all ages are equally likely to begin running for HEALTH motives.

The absence of sex differences may reflect the more active physical role assumed by females in our society during the past decade. Until relatively recently women have traditionally been denied the social approval to engage in strenuous fitness activities. Cratty (1983) suggests that increased female participation in sport and fitness is largely due to a variety of sociocultural conditions which have provided new "active" female role models and positive reinforcement for athletic females. Certainly more women are presently observed actively participating in exercise programs.

It was concluded from regression analysis that sex was significantly related to PERSONAL CHALLENGE, sex and age were related

significantly to PREVENTION, and sex was significantly related to REMEDIAL. Hence, the variables sex and age were important predictors of particular motives for beginning to run. Two-way analysis of variance indicated significant differences between specific sex-cohort groups and factor scores. Unlike the findings from multivariate analysis, however, two-way interaction findings simply represent association rather than significant correlation. Thus sex-cohort differences assist in our understanding of adult motives rather than in our prediction of adult motives.

Although some factors were significantly associated with sociopsychological variables, most variance in participant motivation was unexplained. Motivational orientations that impel adults to begin running are not redundant measures of something else. The IRFRS appears to measure psychologically distinct variables largely unrelated to other variables habitually used in this type of research. In this study the result was particularly significant because an inductive approach was employed and, as a consequence, numerous independent variables were examined. For the author of the IRFRS it was satisfying to know that the instrument measures "clean" factors that are not redundant or overlapping manifestations of some other variable. But, the inability to explain a larger amount of variance in IRFRS scores leaves open many questions concerning why adults initiate a running program.

Theoretical Considerations

The results suggest that reasons for beginning to run were partially related to individual, environment, and life event variables. Support for this perspective is provided by Hultsch and Deutsch (1981)

who suggest that research into adult development should focus on the phenomena of intraindividual changes in behaviour. They emphasize that emphasis be placed on behaviour change processes which involve the interaction of many antecedents. In order to understand adult behavioural change one must be sensitive to the timing and sequencing of events over the life span of each individual. From this perspective, life events and external influences do not have uniform meaning or significance. When an event occurs or an external influence is evident is as important as whether it occurs at all.

Age and sex were generally poor predictors of reasons for beginning to run. The situation was portrayed in Table 22. When all available personal characteristic, life event, and external influence variables were entered into regression equations to predict IRFRS scores, the effects of sex and age were largely masked by or buried in life event variables. The best predictors of running for SOLITUDE were Health and Social events. Neither sex nor age met the criteria for entry into the equation. Sex, but not age, entered the PERSONAL CHALLENGE equation in conjunction with Social events. Running for SOCIALIZATION was best explained by Finance events and MOVIE influences. When competing with life events and external influences, sex and age failed to meet the criteria for entry into the equation. Sex did enter the REMEDIAL equation, in conjunction with Occupation and Health events. Neither sex nor age accounted for significant amounts of variance in running for HEALTH where Health events and Work events were the best predictors. Only the PREVENTION equation incorporated both age and sex which entered in conjunction with Health events, Work events, and MEDIA influence.

Thus, the most important conclusion concerns the influence of age and sex. With the exception of PREVENTION, age and sex appear to be less powerful predictors of reasons for running than were life events. Age and sex per se, were not good predictors. In other words, it is the past experience of runners (Health event, Work event, etc.) rather than their age or sex, that is most likely to "explain" their reasons for starting a running program. People have reasons for running but, with the exceptions noted above, they have little to do with their age or sex. Thus, a "behavioural" rather than a traditional "developmental" perspective appears to yield the greatest explanatory power. Although the regression equations did not explain massive amounts of variance in the "reasons," this conclusion has theoretical implications.

Antecedent events probably "trigger" or stimulate behavioural change. Whether internal or external, normative or idiosyncratic, one or more triggering stimuli are usually responsible for the timing of the initiation of new behaviours. The significance of the life events identified in this study supports the notion that intentional behavioural change is the response to antecedent events. Individuals began running at a specific time in their lives because of an event or sequence of events they experienced prior to their decision to begin. The adult may or may not be conscious of the relationship between starting to run and triggering event(s). In some situations the adult may not be able to explain why he or she started running. On several occasions, subjects in the present study indicated that they had "never put the pieces together" until they completed the questionnaire. That is, they either never consciously considered their reasons for beginning running or they were never able to clearly explain their motives.

However, once they focused onto life events they had experienced prior to running, nebulous relationships became clear.

Although antecedent life experiences were the best predictors of reasons for beginning to run, all subjects were affected to various degrees by external influences. Adults are constantly bombarded by messages or ideas transmitted through various media. Some messages have an immediate impact; others tend to be "chronic." They develop insidiously and are not acknowledged until relatively well established. In contemporary Canadian society, the delivery of fitness messages continues and new methods of presentation appear regularly. As indicated from the results of this study, the most reported external influence was seeing adults your own age or older running in the community. Whether aware or not, many adults are influenced by models with whom they identify. Some adults can identify one individual who inspired them to begin running, others indicate that it was the continual observation of others "like themselves" running that "got them started."

As indicated in the results, men usually did not begin running for different reasons than women. For the most part sex was a poor predictor of reasons for beginning to run. Apart from factors in which physiological differences between the sexes were significant (PREVENTION, REMEDIAL) or level of performance was considered (PERSONAL CHALLENGE), males and females appeared similar regarding motives for running. The weak relationship between sex and motivational orientation has recently been shown in an analysis of 12,592 adults (Boshier, 1984). In this study, age was a better predictor of motivational orientations than sex but both were considered too weak as predictors to design

specific learning programs based on sex and age differences. As Boshier (1984) noted:

The data appears to pose problems for program planning theory which assumes that men or women, young or old people are differently motivated. . . . Quite simply, people who want social contact simply want social contact. That is why they have enrolled; it has little to do with sex or their place in the life cycle. . . . The erosion of sex differences and the widespread rejection of the notion that older adults should gracefully "disengage" from society are small parts of much larger and profound changes shaping the character of life in the last part of this century. (p. 12)

The increased participation in exercise and sport by females and older adults during the past decade substantiates the broadening of roles and expectations for these two segments of the population. During the data collection phase of this study it became apparent that there were more female than male recreational runners in the locations under observation. Also of interest were those adults who indicated that they did not begin running until 50 years of age or older.

Apart from the PREVENTION factor, age was not a significant predictor of any of the other motivational orientations. As suggested by Baltes and Willis (1977), traditional views of attributing behavioural change to age are misleading. As indicated by the results of this study some behaviours are indeed related to age, but chronological age would be considered primarily as a descriptive variable. Although sex/age interactions were not significant for most factors, the unexpected distinction in scores which appeared between specific sex-cohort groups is of theoretical interest. It appears that sex-cohort differences must be considered when examining behaviours such as reasons for running in which between-cohort differences exhibit a high correlation with variables that change with time. For instance, females in the 46 and older cohort group may be less likely to begin

running for PERSONAL CHALLENGE than are adults in other cohort groups because of social-historical events which only they experienced or were influenced by. Previous more restrictive roles and expectations certainly might be a factor in this particular situation. Conversely, males in the 29-34 age group may be more likely to have begun running for SOLITUDE reasons than adults in other cohort groups because of the particular roles and expectations which are characteristic of this specific stage of the life cycle. Perhaps more 29-34 year old males run for SOLITUDE because they are the first representatives of that specific sex-cohort group to be exposed to the running "movement" and the claims made regarding stress reduction. As one 33 year old dentist answered, when asked why he began running: "I just happened to historically be at the right spot at the right time." If future investigations find similar sex-cohort distinctions, it would confirm that in spite of the relative insignificance of age and sex as predictors of motivational orientations, the interaction of sex and age has relevance during specific stages of the life cycle.

A theoretical explanation of why adults begin running must consider four components or forces. First, are the motivational orientations. As shown in this study, the reasons why adults begin to run can be divided into six factors: SOLITUDE, PERSONAL CHALLENGE, SOCIALIZATION, PREVENTION, REMEDIAL, and HEALTH. These factors represent the three major areas suggested prior to the study; physiological, psychological and social. The second component of this theory is the experience of antecedent life events. For purposes of this study, only events experienced within the five year period prior to running were considered. Obviously, events occurring earlier than this time frame

could still be relevant to the adult's decision to begin running. As indicated earlier in the study, neither the magnitude of the event nor the individual's perception of the event is a more useful measure of life event significance than simply the recording of the type and number of life events experienced. The number and type of events experienced were closely related to the reasons why one began running.

The third consideration in providing a theory of reasons for beginning running are the external influences, which in conjunction with life events, encourage or stimulate the individual to initiate change. For purposes of this study, external influences were selected to represent examples of major identifiable "forces" which directly or indirectly made adults aware of running.

The final component of this theory is the change in behaviour--the adult starts a running program. Beginning to run is interpreted as a consequence to antecedent life experiences, external influences, and one's genetic makeup. Depending on reinforcement patterns, the adult will adhere to the running program or drop out. Although this study only investigated individuals involved in a self-planned running program, it would be of interest and importance to examine relationships between reasons for beginning running and adherence or drop-out. Do adults who begin running for specific reasons have a greater tendency to continue running or drop-out than those who began running for other motives?

CHAPTER ELEVEN

FUTURE RESEARCH

Insight into adult motives for modifying an exercise or health behaviour should benefit professionals, policy makers, and academics in several fields concerned with adult development: health, recreation, lifelong learning, counseling and personal growth, and physical education. The identification of relationships between personal characteristics of the individual, external influences, life events, and reasons for beginning to run will not only assist in the understanding of why adults voluntarily initiate a significant change in their exercise behaviour but will also provide important information for those occupations which attempt to foster and facilitate the adoption of new behaviours.

Realizing the extent and importance of adult intentional changes regarding exercise or health behaviours, professional practitioners can play an important role in promoting beneficial and effective changes. Tough (1982) suggests seven potential directions in which intentional changes can be facilitated:

1. improve individual competence in managing change
2. develop better help with goals and planning
3. increase information about opportunities and resources
4. reduce undue restrictions on freedom of choice
5. widen the range of opportunities and resources
6. improve ongoing support from nonprofessionals
7. improve the effectiveness of professional helpers. (p. 77)

Experimentation and adoption of new strategies in the above mentioned potential directions are future challenges for health and exercise leaders in their efforts to promote and facilitate behavioural

change. The possible benefits of providing assistance and competence to adults having difficulty in initiating or maintaining intentional changes could be far-reaching.

Awareness and appreciation of the adult's ability to achieve remarkable changes in themselves and their lives provide a personal as well as professional interest. The examination of one's own reasons for changing behaviours can be fascinating and enlightening. As one gains greater insight into motives for previous changes in exercise or health behaviours, one may more effectively select and achieve future changes.

Suggestions for Future Research

As this was the initial investigation of reasons why adults began to run it is important that the study be replicated so as to compare the results of different populations and determine the reliability of the findings. It would be of interest to examine the consistency of the factors describing reasons for beginning to run and the relationships between the reasons and the independent variables. Determination of the reliability of the sex-cohort differences found in the present study would be of special interest. It is important that the IRFRS, and LES, and the EIS be employed on other populations so that scores from various groups can be compared and norms developed. Future research might consider modification of the instruments to accommodate studies of different exercise or health related behaviours or significantly different populations.

Future investigations should be performed in other regions, subcultures, and countries. As adult recreational running has become commonplace throughout the world, it would be most interesting to

compare reasons for beginning running. Do similar patterns exist regarding reasons for beginning to run in adults from Vancouver, Singapore, Sydney, Paris and Stockholm?

Future research might consider comparing reasons for beginning running and reasons for continuing running. Previous investigation by the researcher suggests that as adults experience running, they become aware of physical and psychological consequences of running which they had not previously experienced. For instance, an individual might begin running to lose weight or improve stamina. After participating in a regular running program for a sufficiently long period of time one may no longer have a weight problem and stamina may have reached the desired level. Yet the person continues to run. When asked to describe the reasons why one continues to run he or she may identify psychological factors such as a pleasurable state of mind or a chance to be alone and reflect. Thus it appears that adult reasons for adhering to an exercise program may differ significantly from the initial reasons for beginning.

Future investigations might examine relationships between reasons for beginning to run and "adherence." For example, is an individual who began running for SOLITUDE more likely to drop out from running than an individual who began for PREVENTION? Future research might also investigate possible relationships between sex or the age at which the adult began running and adherence or drop-out.

Future study might attempt to determine whether there are quantitative differences in the effect or significance of the behavioural change in relation to the initial motive. Is the impact of beginning running for SOCIALIZATION different in magnitude or significance than beginning to run for REMEDIAL? Investigations of this

type would consider the benefit or outcome of running to the participant and others in relation to reasons for beginning.

Many questions exist regarding the actual tasks or stages in the self-directed learning of a new exercise behaviour such as running. Tough (1982) suggests that the individual is responsible for approximately 70 percent of the choosing, planning, and implementing of intentional changes. Future research is required to investigate steps taken by the adult in deciding to begin running, planning a running strategy, and finally actually beginning a running program. An examination of the major resources used by the individual in planning and initiating his running program would also be important. Tough's research indicates that resources outside the individual account for approximately 30 percent of the behavioural change. The most common resource in a self-directed program is a nonprofessional helper such as a family member or friend. Professional help only contributes about six percent and nonhuman resources such as books, television, and posters receive about three percent of the credit for helping with choosing, planning, and implementing intentional changes. Future research might examine reasons for beginning to run in relation to the specific resources used by the adult. Because professionals have limited control over many of the variables related to reasons for beginning to run it is essential that research be performed in areas where intervention or influence is possible. Further identification and examination of external influences might provide useful information concerning the management and control of the various sources of information and public education. Research into more effective modelling techniques and media

devices may assist government and private efforts to modify adult lifestyle behaviours.

As suggested in the recommendations of the Canada Fitness Survey (1983), the investigator strongly advocates that adults, especially women and the elderly, should continue to be encouraged to participate in physical recreation. Future research is required to identify successful fitness policies and promotions and to develop innovative techniques to influence larger audiences. The fact thousands of Canadian adults of all ages engage in regular physical recreation should be a central theme of fitness promotion campaigns so as to establish activity as the norm in Canadian society. Efforts must be made to inform the adult population of specific and substantiated benefits derived from a regular program of exercise. The prospect of a future in which adults from all segments of Canadian society take the responsibility to initiate and participate in individualized programs of physical activity offers beneficial and exciting recreational and health rewards.

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APPENDICES

APPENDIX A
CODING SCHEDULE

Card One

<u>Column No.</u>	<u>Variable</u>	<u>Code</u>
1-3	I.D. number	
7	Sex	Male = 1 Female = 2
8-9	Age	No. of years
10	Country of birth	B.C. = 1 Prairies = 2 Ont. = 3 U.S. = 4 U.K. = 5 W. Europe = 6 E. Europe = 7 Asia = 8 Australiasia = 9
11	Living arrangements	2 or more adults = 1 1 adult & kids = 2 1 adult = 3 Kids = 4 Alone = 5
12	Education	No formal = 1 Compl. element. = 2 Compl. gr. 10, 11 = 3 Grade 12 = 4 Diploma = 5 Part. univ. degree = 6 Undergrad. degree = 7 Grad. degree = 8
13	Occupation	Prof./Tech. = 1 Manager./Admin. = 2 Clerical/Sales = 3 Skilled = 4 Unskilled = 5
14-15	Moved to Lower Main.	Year e.g. 1970 = 70
16	Running history	Before = 1 After = 2

APPENDIX A Continued

CODING SCHEDULE

<u>Column No.</u>	<u>Variable</u>	<u>Code</u>
17	Competitive during school	No. = 1 Yes = 2
18	Competitive after leaving school	No = 1 Yes = 2
19-20	No. of months running	Actual no.
21-22	Distance run	No. of miles
23	Location of run	Neighbourhood = 1 Park = 2 Track = 3
24-25	Team sports	Actual no.
26-27	Individual sports	Actual no.
28-44	External influences 01 to 17	No = 1 Unsure = 2 Yes = 3
45-79	Reasons for running 01 to 35	No influence = 1 Little influence = 2 Mod. influence = 3 Much influence = 4
80	Card no.	1
<u>Card Two</u>		
7-21	Reasons for running 36-50	No influence = 1 Little influence = 2 Mod. influence = 3 Much influence = 4
23-79	Life events Health 01 to death 01	Not experienced = 10 Very negative = 21 Mod. negative = 22 Mildly negative = 23 No effect = 24 Mildly positive = 25 Mod. positive = 26 Very Positive = 27
80	Card no.	2

APPENDIX A Continued

CODING SCHEDULECard Three

8-79	Life events	Not experienced = 1
	Death 02 to Work 06	Very negative = 21
		Mod. negative = 22
		Mildly negative = 23
		No effect = 24
		Mildly positive = 25
		Mod. positive = 26
		Very positive = 27

80	Card no.	3
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Card Four

7-18	Life events	Not experienced = 1
	Work 07 to Work 12	Very negative = 21
		Mod. negative = 22
		Mildly negative = 23
		No effect = 24
		Mildly positive = 25
		Mod. positive = 26
		Very positive = 27

80	Card no.	4
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APPENDIX B

THE QUESTIONNAIRE



U.B.C. RUNNING RESEARCH PROJECT

We are interested in the influence of life events on the decision to begin running. We would like 15 minutes of your time to complete these questionnaires. We think you'll find the questions interesting, but please note that you can withdraw at any time. Your cooperation is appreciated, all responses are confidential, and your name is not required.

When did you begin running on a regular basis (ie. twice a week)?

MONTH

YEAR

Two years prior to this would have been:

MONTH

YEAR

Where did you live at this time?

CITY/TOWN

COUNTRY

KEEP THIS TWO YEAR PERIOD IN MIND!!

TO WHAT EXTENT DID THESE REASONS INFLUENCE YOU TO BEGIN RUNNING?

Think back to the time immediately before you began to run. Indicate the extent to which each of the reasons listed below influenced you to begin running. Circle the category which best reflects the extent to which each reason influenced you to begin running. No reason is any more or less desirable than any other. Circle one category for each reason.

START HERE:

1. To improve energy level	No influence	Little influence	Moderate influence	Much influence
2. To live longer	No influence	Little influence	Moderate influence	Much influence
3. To escape boredom	No influence	Little influence	Moderate influence	Much influence
4. To lose weight	No influence	Little influence	Moderate influence	Much influence
5. To compete against myself	No influence	Little influence	Moderate influence	Much influence
6. To help alleviate back pain	No influence	Little influence	Moderate influence	Much influence
7. To help sort out problems	No influence	Little influence	Moderate influence	Much influence
8. To help develop stamina	No influence	Little influence	Moderate influence	Much influence
9. To satisfy curiosity regarding running	No influence	Little influence	Moderate influence	Much influence
10. To make new acquaintances	No influence	Little influence	Moderate influence	Much influence
11. To compensate for social drinking	No influence	Little influence	Moderate influence	Much influence
12. To provide enjoyment	No influence	Little influence	Moderate influence	Much influence
13. To maintain current weight	No influence	Little influence	Moderate influence	Much influence
14. To engage in activity requiring low skill	No influence	Little influence	Moderate influence	Much influence

TO WHAT EXTENT DID THESE REASONS INFLUENCE YOU TO BEGIN RUNNING?

15. To provide a quiet time	No influence	Little influence	Moderate influence	Much influence
16. To maintain good physical health	No influence	Little influence	Moderate influence	Much influence
17. To provide relaxation	No influence	Little influence	Moderate influence	Much influence
18. To provide the opportunity to buy the "in" clothes	No influence	Little influence	Moderate influence	Much influence
19. To follow the advice of a physician	No influence	Little influence	Moderate influence	Much influence
20. To develop coordination	No influence	Little influence	Moderate influence	Much influence
21. To provide a personal challenge	No influence	Little influence	Moderate influence	Much influence
22. To compensate for a "bad" nutritional habit	No influence	Little influence	Moderate influence	Much influence
23. To get tanned	No influence	Little influence	Moderate influence	Much influence
24. To be liked	No influence	Little influence	Moderate influence	Much influence
25. To engage in "convenient" activity	No influence	Little influence	Moderate influence	Much influence
26. To prevent premature aging	No influence	Little influence	Moderate influence	Much influence
27. To improve physical health	No influence	Little influence	Moderate influence	Much influence
28. To experience the "runner's high"	No influence	Little influence	Moderate influence	Much influence

TO WHAT EXTENT DID THESE REASONS INFLUENCE YOU TO BEGIN RUNNING?

29. To escape from routine	No influence	Little influence	Moderate influence	Much influence
30. To help quit smoking	No influence	Little influence	Moderate influence	Much influence
31. To gain self-confidence	No influence	Little influence	Moderate influence	Much influence
32. To increase joint mobility	No influence	Little influence	Moderate influence	Much influence
33. To conform to the influence of others	No influence	Little influence	Moderate influence	Much influence
34. To serve as transportation	No influence	Little influence	Moderate influence	Much influence
35. To get rid of guilt	No influence	Little influence	Moderate influence	Much influence
36. To compete against others	No influence	Little influence	Moderate influence	Much influence
37. To provide a predictable form of exercise	No influence	Little influence	Moderate influence	Much influence
38. To improve appearance	No influence	Little influence	Moderate influence	Much influence
39. To get social status	No influence	Little influence	Moderate influence	Much influence
40. To prevent heart disease	No influence	Little influence	Moderate influence	Much influence
41. To provide my own block of time	No influence	Little influence	Moderate influence	Much influence
42. To get fit for another sport	No influence	Little influence	Moderate influence	Much influence

TO WHAT EXTENT DID THESE REASONS INFLUENCE YOU TO BEGIN RUNNING?

43. To be able to eat more	No influence	Little influence	Moderate influence	Much influence
44. To provide an aesthetic experience	No influence	Little influence	Moderate influence	Much influence
45. To help control a specific health problem	No influence	Little influence	Moderate influence	Much influence
46. To help cope with an emotional crisis	No influence	Little influence	Moderate influence	Much influence
47. To get more "in-touch" with my body	No influence	Little influence	Moderate influence	Much influence
48. To interact with others	No influence	Little influence	Moderate influence	Much influence
49. To avoid confronting a problem	No influence	Little influence	Moderate influence	Much influence
50. To provide solitary time	No influence	Little influence	Moderate influence	Much influence

LIFE EVENTS

Consider the two year period prior to when you began to run regularly (minimum twice per week).

Did you experience any of the following events? If so, what effect did they have?

A. HEALTH

1. Gained weight	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
2. Experienced traumatic health change (eg. heart attack, fracture, low back pain)	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
3. Became aware of decreased fitness (eg. less energy, decreased physical capacity)	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
4. Experienced onset of disease (eg. diabetes, high blood pressure)	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
5. Experienced mental illness	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
6. Experienced improved health	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
7. Experienced a reminder of the aging process	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
8. Became concerned or alarmed regarding present lifestyle and health	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
9. Experienced increased awareness and interest in physical fitness	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
10. Experienced increased awareness and interest in preventive medicine	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
11. Experienced increase in stress	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
12. Experienced periods of depression	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive

Consider the two year period prior to when you began to run regularly (minimum twice per week).
Did you experience any of the following events? If so, what effect did they have?

13. Experienced difficulties in sleeping	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
14. Experienced fear of becoming old	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
15. Experienced fear of dying	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive

B. FAMILY

1. Became pregnant or wife/partner became pregnant	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
2. Became a parent for the first time	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
3. Became a parent of additional children	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
4. Experienced an abortion (or partner had abortion)	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
5. Son or daughter left home	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
6. Health of family member changed	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
7. Felt "off-time" regarding role in family	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
8. Experienced difficulty in raising child	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive

Consider the two year period prior to when you began to run regularly (minimum, twice per week).
Did you experience any of the following events? If so, what effect did they have?

9. Experienced trouble with inlaws	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
10. Experienced dissatisfaction with marriage or relationship	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
11. Experienced change in number of family get-togethers	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
12. Began living by myself for the first time	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
C. DEATH										
1. Close family member died	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
2. Friend died	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
3. Death of someone you can identify with	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
4. Pet died	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
D. SOCIAL										
1. Acquired a new friend	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
2. Broke up with a friend	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
3. Friend's health changed	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive

Consider the two year period prior to when you began to run regularly (minimum twice per week).

Did you experience any of the following events? If so, what effect did they have?

4. Experienced desire to make new acquaintances	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
5. Experienced significant change in social activities	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
6. Joined a new club or social group	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
7. Took a vacation	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
8. Participated in adult education or recreation program	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
9. Felt "off-time" regarding number or types of friends	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive

E. EDUCATION

1. Began studies at college or university	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
2. Changed college or university	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
3. Began job training program	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
4. Failed or dropped out of studies	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
5. Graduated from college or university	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive

Consider the two year period prior to when you began to run regularly (minimum twice per week).
Did you experience any of the following events? If so, what effect did they have?

6. Felt "off-time" regarding expected level of education	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
F. RESIDENCE										
1. Purchased house	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
2. Sold house	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
3. Changed residence	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
4. Changed living conditions (for better or worse)	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
5. Remodeled home	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
G. FINANCES										
1. Took out mortgage	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
2. Renewed mortgage	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
3. Experienced mortgage or loan foreclosure	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
4. Experienced a substantial increase in income	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive

Consider the **two year period** prior to when you began to run regularly (minimum twice per week).
Did you experience any of the following events? If so, what effect did they have?

5. Experienced a substantial decrease in income	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
6. Experienced a substantial increase in rent	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
7. Experienced financial problems due to cost of living increase	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
8. Experienced a dramatic change in financial state.	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
H. WORK RELATED										
1. Experienced a job change	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
2. Experienced a change in work hours	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
3. Experienced a promotion	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
4. Changed responsibilities at work	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
5. Experienced retirement	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
6. Was fired	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
7. Denied anticipated salary increase	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
8. Was laid off	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive

Consider the two year period when you began to run regularly (minimum twice per week).
Did you experience any of the following events? If so, what effect did they have?

9. Denied anticipated promotion	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
10. Obtained first job	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
11. Experienced reduced working hours	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive
12. Experienced a change in working conditions	NO	?	YES	Very Negative	Moderately Negative	Mildly Negative	No Effect	Mildly Positive	Moderately Positive	Very Positive

EXTERNAL INFLUENCES

During the two years before you began to run twice a week did you read, see, or hear the following? Circle YES, ? or NO.

- | | | | |
|---|-----|---|----|
| 1. Television coverage of a running event (eg. marathon, community fun run) | YES | ? | NO |
| 2. A television movie in which running was portrayed | YES | ? | NO |
| 3. A motion picture which featured running | YES | ? | NO |
| 4. Radio promotion or coverage of a running event | YES | ? | NO |
| 5. A newspaper article related to running | YES | ? | NO |
| 6. A magazine article related to running | YES | ? | NO |
| 7. A specific running publication such as Runner's World | YES | ? | NO |
| 8. A book promoting the health benefits of running such as Aerobics | YES | ? | NO |
| 9. A commercial advertisement which employed a running or fitness image | YES | ? | NO |
| 10. Participaction fitness promotion | YES | ? | NO |
| 11. Action B.C. fitness promotion | YES | ? | NO |
| 12. Employee fitness promotion | YES | ? | NO |
| 13. Fitness message comparing a 60 year old Swede to a 30 year old Canadian | YES | ? | NO |
| 14. Adults your age or older running in community | YES | ? | NO |
| 15. A celebrity or public figure who endorsed fitness or running
(eg. John Kennedy, Jane Fonda) | YES | ? | NO |
| 16. An individual athletic performance having great emotional impact
(ie. a blind or wheelchair athlete) | YES | ? | NO |
| 17. Media promotion of "self-growth" (ie. getting in touch with your body) | YES | ? | NO |

Please answer these background questions. Remember, your name is not required.

1. Are you a man or woman? (check)

Woman..... ☐
Man..... ☐

2. What is your age?

_____ years

3. What is your place of birth?

Town/City	Country
-----------	---------

4. With regard to your living arrangements, do you?

- Live with 2 or more adults ☐
- Live with another adult and a child or children ☐
- Live with another adult (no children)..... ☐
- Live with a child or children (no other adults) ☐
- Live alone ☐

5. What is the **highest** educational qualification you hold (check only one box)

- No formal qualification ... ☐
- Completed elementary school ☐
- Completed grade 10 or 11 (but not 12) ☐
- Grade 12 qualification or overseas-equivalent..... ☐
- Vocational school diploma, Business School Diploma, or Journeyman's qualification ☐
- Part of a university degree or diploma ☐
- Completed undergraduate degree or college/technical school diploma, eg. B.A., B.Sc..... ☐
- Completed graduate degree or diploma, eg. M.A., Ph.D. . ☐

6. When working, what is your normal occupation?

- Professional/Technical, (eg. teacher, accountant, computer programmer, lab technician, nurse, biologist, surveyor, engineer, social worker, professor) ☐
- Managerial/Administrative (eg. supervisor, manager, foreman, school administrator) ☐
- Clerical/Sales (eg. clerk, cashier, salesperson, bank teller)..... ☐
- Skilled Worker - training required (eg. plumber, carpenter, logger, fisherman, welder, chef, letter carrier, gardener, auto mechanic) . ☐
- Unskilled Worker - no training required (eg. labourer, deck-hand, cleaner, fruit picker) ☐

7. What is your **actual** occupation? (print) _____

If you are a student, check here ☐

8. When did you move to the Lower Mainland?

Check if born here ☐

Month	Year
-------	------

Did you begin running twice a week **before** or **after** you moved to the Lower Mainland?

Before ☐
After ☐

9. Were you a competitive athlete (i.e. participated in organized sport)?

During school years Yes ☐ No ☐
After leaving school Yes ☐ No ☐

10. For how many months have you been running twice a week?

months

11. What distance do you run in an average week?

miles

12. Where do you normally run?

13. Prior to beginning to run twice a week did you participate
(one or more times) in any of the following:

Team Sports

Baseball	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Basketball	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Cricket	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Field Hockey	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Football	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Hockey	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Lacrosse	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Rugby	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Softball	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Volleyball	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Soccer	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Other (print) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Other (print) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Individual Sports

Badminton	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Bowling	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Canoeing	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Cycling	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Dance	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Golf	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Gymnastics	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Handball	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Hiking	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Keep Fit Class	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Racquetball	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Skiing	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Squash	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Swimming	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Table Tennis	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Tennis	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Track and Field	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Yoga	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Other (print) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Other (print) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Other (print) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>