Chapter 1

INTRODUCTION

Physical inactivity is a serious, nationwide problem. In fact, it is a problem of such magnitude that it poses a significant public health challenge, according to a report on physical activity and health issued by the Centers for Disease Control and Prevention (CDC) (U.S. Department of Health and Human Services, 1996). This report stated that 60 % of adult Americans do not achieve the recommended minimum amount of regular physical exercise, and 25 % do not exercise at all. In addition 50 to70 % of the adults who do begin an exercise program dropped out within 12 to 24 months after initiating their exercise programs (Martin and Dubbert, 1982), and 40 to 50 % of these adults dropped out during the first six months of exercise (Dishman, 1986).

There are many physical activities today one can choose to regularly engage in, in order to become physically fit. In this researcher's opinion most people believe that running or high impact aerobics are the only viable options if they want to become fit. However, if people believe these activities are intimidating or painful, they never begin an exercise program. Presenting walking as a viable alternative to running or high impact aerobics can tip the scales and encourage sedentary, adult Americans to begin and maintain a healthy exercise program. In addition, according to Lizzy Kemp Salvato (personal communication, September 15, 2002), walking provides the advantage of reducing the probability of serious injury. Dr. JoAnn Manson, Chief of Preventive Medicine at Harvard's Brigham and Woman's Hospital recently

commented, “If everyone in the U.S. were to walk briskly 30 minutes a day, we could cut the incidence of many chronic diseases by 30 to 40 percent” (Goreman, 2002, p. 82). The Surgeon General’s CDC report on physical exercise stated that moderate-intensity activity, such as walking, if regularly performed for 30 to 45 minutes, preferably on a daily basis, would significantly reduce the risk of heart disease, colon cancer, and diabetes (U.S. Department of Health and Human Services, 1996).

Background

In the past walking has not been considered a “status” sport; only recently has it been considered a sport at all. Additionally, it is only during the last decade that walking as a sport has gained national support among exercise and health professionals and sponsoring organizations such as “Team In Training” (TNT). Throughout history walking has been just a way to get from point “A” to point “B,” offering more than adequate exercise to keep fit. A recent U.S. government report from the National Center for Health Statistics (2002) stated that, “in 2000, almost 40 % of adults reported that they did not engage in physical activity during leisure time. The proportion of adults who were physically inactive increased with age, and at most ages women were more likely to be inactive than men”(p.24). Walking is an ideal form of exercise for many in that it takes minimal equipment, no special talent, and can be done anywhere.

Walking offers many physiological benefits according to Austin Gontang (personal communication, September 18, 2002). These benefits include: reduced heart rate,

lowered resting blood pressure, diminished potential for platelet reduction, increased muscle metabolic capacity and enzyme activities, increased lipid utilization, increased HDL, decreased LDL/HDL Ratio, and increased insulin receptor sensitivity and glucose tolerance. Psychologically, walking offers additional benefits: reduced depression, anxiety, tension, and increased feelings of well-being, improved control of daily stressors, higher tolerance for daily stressors, improved self-image, and increased sense of vigor (Gontang, 1996).

According to Dave McGovern (2000), during the 1990's marathon walking became the fastest growing trend in marathoning. During the past few years over 77 million people have turned walking into the number one fitness activity in America (Seiger and Hession, 1990). A number of reasons account for the surge in popularity of marathon walking. There are fewer injuries associated with walking (Margen, 1995). According to Iknoian (1995) walking is low impact, walkers land with 1 to 1-1/2 times their body weight per foot-strike, compared with 3 to 4 times for running. The benefits of walking have recently been extolled by the medical profession. In the 1970's the focus was on the benefits of vigorous exercise – high impact aerobic exercise lasting at least 20 minutes three or more days a week. (U.S. Department of Health and Human Services, 1996). The latest study by the National Center for Health Statistics(2002) concluded that physical activity of moderate intensity for 30 minutes or more on all days would maintain and improve physical fitness. The change in recommendation was the growing understanding of how physical activity affects physiologic function; in particular, three recent studies found that "cardiorespiratory

fitness gains are similar when physical activity occurs in several short sessions of 10 minutes as when the same amount and intensity of activity occur in one longer session of 30 minutes" (National Center for Health Statistics, 2002, p.24).

The charity that started the marathon walking trend was the Leukemia and Lymphoma Society's "Team In Training" (TNT), which was the largest endurance training program in the United States at that time, 1996. They found that legions of people, nearly 30,000 by 2000, were willing to collect donations in return for training to walk or run a marathon. More than 15 organizations quickly followed the lead of TNT, including the Arthritis Foundation's group "Joints In Motion," and the American Diabetes Association's "Team Diabetes" (McGovern, 2000).

In the researcher's experience, walking a full marathon (26.2 miles) involves many hours of training, development of motivation, establishment of goals, and enhancement of belief in oneself. Given that almost every adult walks, however, there has been prejudice to overcome for those training to walk a marathon. People who were solicited for donations sometimes questioned, "How hard could it be to *walk* a marathon?" Some participants of TNT were discounted as being "just walkers," according to the head walk coach for the San Diego TNT chapter, Susan Fieldman (personal communication, February 16, 2002). It was her observation that "many of the people who signed up for the marathon run team should have been on the walk team since these participants walked more than half the distance of the marathon course." Her experience was that these participants typically ran for the first 10 miles, slowed down to a walk for much of the distance, then in the last stretch of the race

began running once again for the short distance to the finish line. Thus it appears that as of 2002, many people who identify themselves as marathon runners either do not realize they are primarily walkers or are reluctant to identify themselves correctly, since walking a marathon is only contemporarily being identified as a separate sport.

Statement of the Problem

Sport walking has only existed for a short time. However, it serves as a viable alternative to running or high impact aerobics and has already encouraged many adult Americans to exercise more often. This study was designed to compare runners and walkers of marathons and discern whether there were any differences in changes of motivation, performance goals, and self-efficacy in these two groups of athletes after completing a marathon.

This researcher investigated whether it takes the same kinds of motivation to walk a full marathon as it does to run it. Additionally, she compared the two populations to determine if the goals of a walker were similar to those of a runner. Finally this study investigated whether participating in a marathon affected the self-efficacy of runners and walkers and, if so, how these two types of athletes compared in self-efficacy pre- and post-event.

A thorough review of the literature, which included UMI Dissertation Services, PsycLIT, Sport Discus, Educational Resources Information Center (ERIC), Social Sciences Citation Index (SSCI), PsycINFO, Athletic Insight, Human Kinetics, and over 300 Internet queries using the Northern Light search engine as well as other

reliable search engines, found that no published academic or clinical studies of marathon walkers (including race-walkers) existed. According to Austin Gontang, director of the San Diego Marathon Clinic since 1970,"The [present] study is on the frontier of gathering such information" (personal communication, September 18, 2002).

Goals and Objectives

The legend of Pheidippides' running of the first marathon in 490 BC introduced this endurance event into world culture more than two millennia ago (Baldwin, 1998). The walking of a marathon, however, entered the *zeitgeist* of our culture less than a decade ago. Walking a marathon has grown in popularity considerably since this category was added to the TNT program in 1996.

Many studies have reported the psychological traits of marathon runners. Due to having only recently appeared on the athletic scene, marathon walkers have yet to be studied. The objective of this study was to determine if there was a significant difference between marathon runners and marathon walkers in the changes they experienced in motivation, performance goals and self-efficacy after training for and participating in a marathon.

Theoretical Framework

This study was concerned with the components of motivation that fall into four major categories: intrinsic motivation, self-determined extrinsic motivation, non-self-determined extrinsic motivation, and amotivation (Deci and Ryan, 1985).

In the Theory of Planned Behavior, Icek Ajzen (1991) proposed that intention was fueled by attitude, control, and subjective norm (i.e., the perceived social pressure to perform). He believed that a positive attitude about the behavior, a feeling that the behavior was within one's ability, and an expectation that the actions taken would win social approval, all combined to predict success in the accomplishment of an intended goal. Garland's (1985) Cognitive Mediation Theory of Goal Setting and Performance postulates that a task goal is "an image of a future level of performance that an individual wished to achieve", (p. 357) and, that this positively influenced performance expectancy.

One measure of self-efficacy is confidence in one's ability to perform specific tasks. Bandura (1977) reasoned that repeated successes increase self-esteem. He found that self-esteem became a part of the self-schema and had a predictive quality, in that it allowed the self to generate inferences about future behavior by generalizing from available information.

Bandura (1990) noted that athletes with strong self-efficacy persist longer, generate more effort, stay focused, and have better analytic strategies. He found that success bred behaviors that increased the likelihood of continued success. "Self-efficacy, goal commitment and personal goal setting appear to be significant determinants of performance in a sport setting," according to Theodorakis (1996, p. 174).

Question and Research Hypotheses

This study was directed at answering one important question: Are there differences between marathon runners and marathon walkers in the changes they experience in motivation, performance goals and self-efficacy after training for and participating in a marathon?

The research hypotheses were:

H.1: There is no significant difference in changes in motivation between marathon runners and marathon walkers who have trained for, and completed, a marathon.

H.2: There is a significant difference in changes in the performance goals between marathon runners and marathon walkers who have trained for, and completed, a marathon.

H.3: There is no significant difference in changes of self-efficacy between marathon runners and marathon walkers who have trained for, and completed, a marathon.

Scope of the Study

This study investigated people who participated in the "Team In Training" (TNT) program training for the San Diego 2002 Suzuki Rock 'n Roll Marathon, and the Anchorage 2002 Mayors' Midnight Sun Marathon.

Definitions

The following terms were used in this study:

Amotivation: A mindset in which an athlete feels as though his/her actions have no influence on the outcome of the task.

Athlete: One who is trained or skilled in exercise, sports or games requiring physical strength, agility, or stamina (Merriam-Webster's Collegiate Dictionary, 1983).

Intermediate: at the middle place between extremes (Merriam-Webster's Collegiate Dictionary, 1983).

Marathon: An endurance race conducted on an open course, usually of 26.2 miles, 385 yards (42.2 kilometers) in length.

Master: Skilled, proficient (Merriam-Webster's Collegiate Dictionary, 1983).

Mastery: The perception of achievement or ability, self-referenced and dependent upon improvement and/or learning a specific task (Maehr and Braskamp, 1986).

Motivation: An intervening variable used to account for factors within the organism that arose, maintain and channel behavior toward a goal (Chaplin, J.P., 1985).

Novice: Beginner (Merriam-Webster's Collegiate Dictionary, 1983).

Performance Goal: The chosen outcome for a particular task.

Runner: No strict criteria for running has been established for this marathon; a participant who identifies himself or herself as a runner is considered a runner.

Self-efficacy: The conviction one needs to successfully execute the behavior necessary to produce a certain outcome (Bandura, 1977).

Self-schemas: Cognitive generalizations about the self that are derived from past experiences (Markus, 1977).

Split-time: Time it takes to reach the mid-point of the course.

Sport: A source of diversion: recreation (Merriam-Webster's Collegiate Dictionary, 1983).

Walker: No strict criteria for walking has been established for this marathon; a participant who identifies himself or herself as a walker is considered a walker.

Chapter 2

REVIEW OF THE LITERATURE

Motivation in Athletics

An aspect of intrinsic motivation is based on the athlete's intention to explore and experience for their own curiosity or to master and accomplish for a sense of flow or peak performance.

Csikszentmihalyi (1975) defined Flow as a psychological state that an athlete feels when he or she becomes so completely immersed in an activity that he or she loses all awareness of time, surroundings, and effort. "Sport can offer a state of being [flow] that is so rewarding one does it for no other reason than to be part of it". (p. 99) The athlete describes this experience as *Being in the Zone*. Athletes will seek out situations where they can experience *flow*, according to Jackson and Csikszentmihalyi (1999).

There are eight characteristics of flow state:

(a) The existence of a balance between the perceived skills of an individual and the perceived challenges of a situation, (b) a merging of action and awareness, (c) the presence of clear goals, (d) the presence of unambiguous feedback, (e) concentration on the task at hand, (f) a sense of control over oneself and the environment (g) a loss of self-consciousness, (h) a transformation of time. Csikszentmihalyi (1975, pp.71- 93)

Experiencing a *state of flow* is also described as *spinning free* by Glasser (1976). He describes spinning free as a trancelike, transcendental mental state, which then becomes associated with the sport. The psychological effects feel so good that the runner becomes "positively addicted." Positive addiction to an activity results in an increase in mental strength, and when the activity is skipped the athlete feels the physical and/or mental deprivation.

Glasser has described the six steps to a positive addiction:

> (1) It is something noncompetitive that you choose to do and you can devote an hour (approximately) a day to it. (2) It is possible for you to do it easily and it doesn't take a great deal of mental effort to do it well. (3) You can do it alone or rarely with others but it does not depend upon others to do it. (4) You believe that it has some value (physical, mental, or spiritual) for you. (5) You believe that if you persist at it you will improve, but this is completely subjective – you need to be the only one who measures that improvement. (6) The activity must have the quality that you can do it without criticizing yourself. If you can't accept yourself during this time the activity will not be addicting. (1976, p. 93)

According to Robbins and Joseph (1984), escape has been examined as a function of positive addiction: for example, a runner may use his or her run as a means to reduce daily tensions and stressors. When a regularly scheduled run is missed, that runner may become irritable and restless. A runner may also use running as a coping tool to reduce feelings of depression or other psycho-physiological distress. When this

is the case, and the routine is missed for any amount of time, the runner may experience a return of the emotional pain felt before the runner began exercising Kagan and Squire (1985) correlated the amount of exercise a student maintained with scores on the MacAndrew Scale, a measure of addictive tendency. Students who maintained a regular exercise schedule were correlated positively for having a general addictive tendency to a $p<.01$. This study also suggested that regular exercise was used by some athletes as a release for tension and stress, just as food, alcohol or narcotics might be used by other persons. As long as running does not cause disruption within, or come to dominate the athlete's life, it will not become a negative addiction (Glasser, 1976).

Self-determination theory is a general theory of motivation developed over three decades by Deci and Ryan (1985). They integrated four mini-theories: Cognitive Evaluation Theory, Organismic Integration Theory, Causality Orientation Theory, and Basic Needs Theory. Each of these relate to the development and functioning of personality within social contexts, and how actions move along a continuum from unconscious to conscious choice. Cognitive Evaluation Theory posits the factors that form the basis of intrinsic motivation.

The four factors of Cognitive Evaluation Theory are:

(1) an autonomous or self-determined activity,

(2) feeling of competence, coupled with excitement of a challenge,

(3) feedback that is informational, and

(4) internally controlled pressure to achieve – ego-involvement

Autonomy was tested by Goudas, Biddle, Fox and Underwood (1995). Part of a high school track and field class was allowed to choose the activities of practice, while others had strictly controlled practice. The students given choice reported higher levels of intrinsic motivation.

Feelings of competence involve two components, competence and challenge. Whether one feels able to accomplish a task, and whether that task is a stretch of one's abilities but not impossible to attain, are key components of intrinsic motivation.

Feedback that is positive and constructive is a third important factor. Ryan, Mims, and Koestner (1983) found that players who received feedback on their abilities were more intrinsically motivated than a group that received controlling criteria.

A fourth factor that could negatively effect intrinsic motivation is ego involvement as an intrapsychic demand. This internal regulation melds the athlete's self-esteem to external measures of success. Task involvement, on the other hand, focuses on the activity itself rather than upon the outcome. Of the two states, Cognitive Evaluation Theory suggests that task involvement would provide increased inducement for ongoing self-motivation (Deci and Ryan, 1985). In regard to sport motivation, Duda (1989) found that ego-orientation was negatively related to personal mastery; and that task orientation was positively associated with mastery, cooperation, an active lifestyle, and enhanced self-esteem. Competition has been found to cultivate intrinsic motivation in the athlete if the athlete perceived the feedback to be informational and competence-related (Deci and Ryan, 1985). Competition in which participants pushed

their limits offered an experience that provided significant effectiveness - relevant feedback (Federick and Ryan, 1995).

Self-determined extrinsic motivation is based on material gains such as awards or praise provided by a respected authority such as a coach or parent. This contrasts with external-regulation extrinsic motivation, in which an effort is made to avoid negative consequences, including the experiencing of guilt, anxiety, or pressure to perform well in order to avoid criticism from the same respected authority (Pelletier, Fortier, Vallerand, Tucson, Briere and Blais,1995). Deci and Ryan (1985) viewed the Self Determination Theory to be important for understanding extrinsic motivation as well as intrinsic motivation.

Motivation in athletes has been classified by some to be either intrinsic, extrinsic or amotivation. Vallerand (1997) added that different types of motivation exist at three hierarchical levels: global, contextual, and situational. He found that global motivation related to the person's overall orientation toward a task or activity, such as running. Training for a marathon might provide contextual motivation for a stable, general orientation toward a specific situation. Situational motivation was, however, a relatively unstable and state-specific motivation, encountered while a person was currently engaged in a particular activity, such as competing on race day (Kowal and Fortier, 1999). These levels of motivation can be compared to self-schemas and, even more closely, to personality states and/or traits.

There are four types of extrinsic motivation: external, introjected, identified, and integrated regulation. The extremes of the continuum of self-determination are

internal to external. Extrinsic-external motivation has the least amount of self-determination, and is controlled by rewards and constraints, (e.g., a parent being more lenient with grades or curfew in return for the child's sport participation). Extrinsic-introjected motivation is a response to an outside demand that is internalized, but not accepted as one's own (e.g., sport participation in order for the participant to receive scholarship funds). Extrinsic-identified regulation occurs when a personal value is placed on the activity itself (e.g., the athlete is participating in an activity to raise funds for a valued charity). Extrinsic-integrated regulation is the most autonomous type of motivation, occurring when the activity is congruent with an individual's values or needs, i.e., when the athlete is participating in a sport that offers recognition and rewards that the athlete values outside of sport (Li and Harmer, 1996). A means to an end is the unifying determinant of the four types of extrinsic motivation (Kowal and Fortier, 1999).

Amotivation can be considered a form of *learned helplessness*. This is a mindset in which an athlete feels as though his/her actions have no influence on the outcome of the task (Pelletier, et al., 1995). It occurs when athletes see no causal relationship between efforts and the performance outcome. Learned helplessness is defined as a conditioned response that causes an inability to be proactive on one's own behalf (Seligman, 1975). It is theorized that learned helplessness is generated by the apparent inability of the person to influence the outcome of an event. Learned helplessness suggests the following three behaviors: lack of motivation, poor problem-solving skills, and amplified feelings of frustration, depression, and incompetence. This

constellation of negative feelings and behaviors must be dismantled and reassembled into a more self-preserving and healthy set of beliefs, feelings, and reactions before permanent changes can be made. Abramson, Seligman, and Teasdale (1978) revisited Seligman's original theory and added two further refinements: personal helplessness and universal helplessness. Personal helplessness is defined as one's perceived inability to affect an outcome. Universal helplessness is defined as the inevitability of an outcome despite any measures taken by any person to avoid that outcome.

A runner or walker, concentrating on a timed outcome, may reach a plateau of performance where, despite continued training, the outcome remains the same. Athletes become amotivated when circumstances are less than ideal, and neither mastery nor performance can be attained (Seligman, Maier, and Peterson, 1993). Here other motivational variables such as social or psychological factors must be evoked lest the athlete become amotivated. Focus must be diverted from performance to mastery of technique and the social rewards of participation inasmuch as "motivation changes with self-perceived competence" (Pelletier, et al., 1995).

Jackson and Roberts (1992) found that in a recreational sport setting, task-involved goal orientation, that is, motivation, was positively related to the flow state. Self-determination theory posits that self-actualization is facilitated by situations that increase autonomy, competence, and relatedness (Deci and Ryan, 1985). The same precursors that lead to a successful training program may also lead to a state of flow (Jackson and Roberts, 1992) and to positive addiction (Glasser, 1975).

Athletes are motivated either by mastery or performance (Roberts, 1984).

Mastery may be considered as intrinsic and performance as extrinsic (Figure 1).

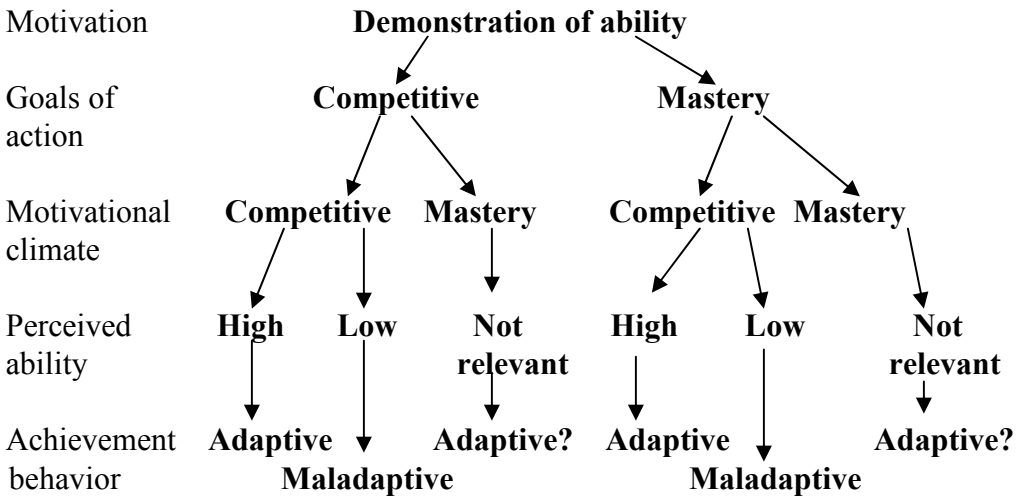

Figure 1: The dynamic process of motivation (Roberts, 1992, p.16).

Mastery moves along a continuum of self-perceived competence from high to low poles (Pelletier, et al., 1995). Performance may be considered on an axis from success to failure, depending on the attainment or lack of attainment of performance goals (Figure 2).

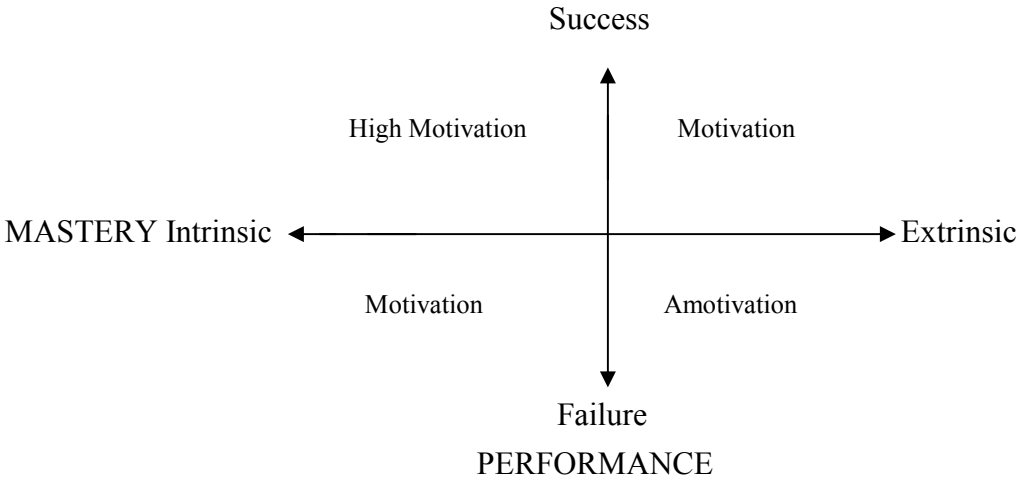

Figure 2: Mastery-performance axis of motivation (Lemaire, 2001).

There are common components represented in each of the major theories of motivation; task is within one's ability, clear goals, clear feedback, and autonomy (Table 1) (Appendix C).

Table 1

Common Components Represented in the Major Theories of Motivation

Components	Motivation
Task is within one's ability	Mastery
Clear goals	Performance goals
Clear feedback	Success/Failure of performance
Autonomy	Intrinsic motivation

(Lemaire,2001)

Although a marathon is considered a timed event, in the researcher's experience performance is not necessarily calculated by the finish time – finishing *itself* is considered an accomplishment. In either case, the atmosphere of cooperation among

participants is evident, and this cooperation increases levels of intrinsic motivation (Vallerand and Loisier, 1999).

Performance Goals in Athletics

The decision to participate in a marathon sets the intention of the athlete to perform a specific performance goal, that is, to walk or run 26.2 miles. Ajzen (1991) proposed in the Theory of Planned Behavior that this intention was fueled by attitude, control, and subjective norm (i.e., the perceived social pressure to perform) (Figure 3).

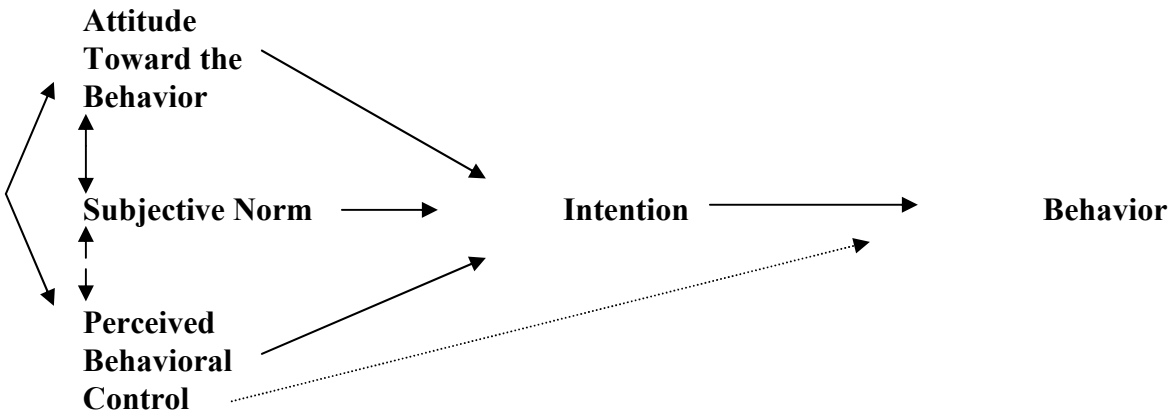

Figure 3: Theory of planned behavior (Ajzen, 1991).

His theory proposed that a positive attitude about the behavior, a feeling that the behavior was within one's ability to achieve, and, the fact that the planned actions would win social approval, all combined to predict success in the accomplishment of an intended goal. Goals operate largely through the individual's internal comparison processes, and require personal standards against which to evaluate ongoing

performance (Weinberg, Bruya, and Jackson, 1985). Garland (1985) developed the Cognitive Mediation Theory of goal setting and performance, contending that a task goal was "an image of a future level of performance that an individual wishes to achieve" and that this image positively influenced performance expectancy. Other theorists, including Elliott and Dweck, (1988), Maehr and Braskamp (1986), and Nicholls (1984), all viewed goals as similar to personality traits, thus providing a predisposition for participation or nonparticipation in an endurance event.

According to Lawler's Valency Theory of Motivation (1971), goals must be "challenging yet attainable in order to sustain interest in progress toward the goal." Goal commitment and personal goal setting point toward determining performance outcome. Goal commitment is the use of determination and persistence in order to achieve the goal in due course. Motivation, here, is not derived from the goal *itself,* but from the attainment of the intermediate goals that lead inexorably to the accomplishment of the final goal (Theodorakis, 1994). Hollenbeck and Klein, (1989) suggest that three factors predict goal commitment: public awareness of the goal, internal locus of control over actions directed toward achievement of the goal, and a goal that is intrinsically, rather than extrinsically, motivated.

"Self-efficacy, goal commitment and personal goal setting appear to be significant determinants of performance in a sport setting," maintained Theodorakis (1996). McAuley (1985) stated that self-efficacy affects how one determines which activity to pursue, how much effort to expend, and, in the face of adverse stimuli, the perseverance and persistence manifested toward achievement of the goal.

Rushall (1995) developed the hierarchy of sporting goals: Career Goals are major outcomes of participation in a sporting career. Relatively Long Term Goals are specific achievements at some defined stage of time. Performance Goals are performance standards or outcomes that are envisioned to occur at a particular time and function as performance outcome for training and are established by the athlete, and failure to achieve these results in demotivation.

Performance Progress Goals are indicators of training progress towards the achievement of performance goals and have a specific time frame for evaluation, and are positively expressed. Failure to achieve these goals leads to frustration, depression, and demotivation. Utilizing these goals, changes in the training program are assessed quickly.

Activity Goals stipulate the factors to be achieved in a specific performance attempt.

Intermediate goals offer appraisals and assessment during performance.

This hierarchy illustrates how goals can be used in sport. Successful completion of a goal provides the feedback an athlete requires to decide how far to push to improve achievement. The process of measuring against a standard of set goals allows an athlete to regulate performance efficacy (Rushall, 1995).

Rushall also pointed out that guidelines for setting goals should: include individual self-control items, be expressed positively, be appropriate for the athlete, have optimal probability and maximum believability, and finally, be measurable and observable (1995, pp.31-36).

Goal setting has two major attributes: content and intensity. Content is the desired result and when it is described in detail, with specific, clear outcomes depicted, it is more likely to be attained. Intensity is the process of determining how to reach the goal, how much effort to expend, how important the goal is, and how it relates to other goals (Locke, Latham, Saari, and Shaw, 1981). The more intense the resolve, the better the outcome is apt to be. The mechanisms of achieving a goal consist of four components: Direction-setting a goal directs attention and action toward that goal. Effort – works in concert with direction in considering the requirements of the goal. Persistence – directs effort over time toward the goal. Strategy Development – provides the cognitive work needed to organize a successful plan to reach a goal.

In their review of 110 studies, Locke, Latham, Saari, and Shaw, (1981) found that 99 demonstrated specific, hard goals to produce better performance. A study by Dimitrova (1970) revealed that more difficult and less ambiguous goals increased the athlete's tolerance to fatigue. Two other key components to successful goal attainment were matching of ability to the difficulty of the goal, and feedback on performance in relation to the goal (Locke et al, 1981). They found that the goal should be within the range of possibility so as not to discourage the participant, yet the goal also should not be so easy that it did not challenge the participant.

Feedback throughout the pursuit of the goal was found to be vital. A study by Locke and Latham (1985) addressed goals for practice and goals for individual aspects of the task, i.e., to help increase stamina, strength, and skill. They found that these interim goals provided the feedback necessary to make any adjustments necessary to

ultimately accomplish the larger goal. The feedback from interim goal achievements also provided small wins, which increased feelings of perceived competence. Their research supports the concept that the expectation of performing well leads to persistence, higher confidence, and higher performance (Deeter, 1989).

Self-Efficacy in Athletics

Self-efficacy expectations have a powerful effect on behavioral change. Strong feelings of self-efficacy are increased when one's behavior has been molded by a graduated series of tasks that culminate in a mastery experience (Bandura, 1977).

Because self-efficacy is measured by confidence in one's ability to perform specific tasks, it has been reasoned that repeated successes increase self-esteem. (Bandura, 1977). "Athletes with strong self-efficacy persist longer, generate more effort, stay focused and have better analytic strategies" (Bandura, 1990, p.147). He found that success breeds behaviors that increase the likelihood of continued success.

Self-schema theory originated in social cognition literature and has been concerned with how self-image influences choices of behavior (Markus, 1977). Markus found human beings were "active information processing agents" (p.43) and that schema was the structure used to organize information around specific concepts. Networks of these schemas formed the framework of self-image. "Cognitive generalizations about the self, derived from past experiences, organize and guide the processing of self-related information" (Markus, 1977, p. 43). Research suggests that athletes build self-schemas from past experience and use these to guide their behavior (Easterbrooks and

Courney, 1997). The three forms of exercise self-schemas are exerciser, non-exerciser, and aschematic. Exerciser schematic types consider exercise to be an important part of their self-description and self-image. Non-exerciser schematic types consider exercise to be extremely non-descriptive of their self-image. Aschematic types may exercise, but exercise is not an uppermost self-descriptive term, nor an important attribute of their self-image. It is suggested that exercise self-schemas can be used to predict exercise intention and frequency (Easterbrooks and Courney, 1997). Kendzierski (1990) found that "exercise schematic types were more likely to initiate an exercise regime, recalled more instances of exercise, and predicted that they would exercise more in the future than either non-exercise schematic types or aschematics"(p.160). These findings were confirmed by Easterbrooks and Courney (1997).

Once a self-schema is in place, it is resistant to any input that is inconsistent with its identity. According to self-schema theory, individuals are active information processing agents. Self-schema allows information that is positive to be recognized, remembered, and used quickly and effectively, thus enhancing self-efficacy and reinforcing a particular self-schema (Boyd and Yin, 1999). A self-schema has a predictive quality in that it allows the self to generate inferences about future behavior by generalizing from available information (Markus, 1977). This quality is useful because it allows a participant to visualize participating in new or more strenuous activity, thus increasing the likelihood that the individual will engage in those kinds of activities in the future. By taking on new or more strenuous activity, participants

further enhance their ability and strength, thus further strengthening that particular self-schema, which in turn, facilitates further rounds of achievement. In the researcher's experience this increase in athletic self-efficacy can generalize to other sports as well and thus increase the likelihood of a marathoner participating in other athletic activities. The popularity of the triathlon (swimming, bicycling, and running), a relatively new sport originating in the late 1970's with the Hawaiian Ironman competition, can be viewed as a natural progression for many athletes from *just* running a marathon.

McAuley (1991) found that, "participants who displayed a moderately strong sense of self-efficacy made predominantly internal and personally controllable attributions for their exercise progress…" (p.386). In other words, McAuley found participants felt that their efforts and ability were responsible for the attainment of their goals. He also found that subjects who exercised with more frequency experienced a moderately strong gain in their sense of self-efficacy, and that personal control was clearly one of the most influential factors in feelings of increased self-efficacy and achievement. High feelings of self-efficacy (e.g., feelings of competence), combined with positive feelings such as pride, personal satisfaction, and pleasure, vis-à-vis exercise, acted to promote an intrinsic interest in that physical activity, with exercise schematic types expressing higher levels of exercise self-efficacy than non-exercise schematic types (Boyd and Yin, 1999).

A study by Rudolph and McAuley (1996) of self-efficacy and perceptions of effort showed that, as self-efficacy increases, perceptions of effort decrease. Also, as the

athletes' self-confidence increased they felt less fatigue and had the perception that they were expending less effort. They also found that as athletes continued to perceive the positive reinforcement of their efforts, they were more likely to continue to exercise. This would, in turn lead to increased pride, competence, personal satisfaction, and pleasure. Active athletes come to feel that they are personally in control of their progress, which, in turn leads to increased levels of self-efficacy. Courneya and Lettunich (1991) found, "Exercise self-efficacy to be a product of acute exercise" (p. 538). In other words, practice intensifies self-efficacy (Courneya and Lettunich, 1991).

Martin and Gill (1995) delineated two forms of self-efficacy, performance self-efficacy and outcome self-efficacy. When athletes were driven by performance self-efficacy, it was noted that they compare how well they are doing at a specific time in comparison to their personal best. Outcome self-efficacy defines a situation in which athletes use the field of competition in a particular event as their rule of measure. According to Martin and Gill (1991), a stronger relationship existed between trait measures and outcome self-efficacy than between trait measures and performance self-efficacy. For example, a novice runner is less likely to accurately judge personal performance (e.g., how fast he/she will complete a course) than his/her chances against the field of competitors. This is due to a lack of personal performance experience, as well as to the unambiguous and extensive amount of information presented by a field of competitors.

Self-efficacy expectation is a cognitive process. It creates a dynamic that allows athletes to assess performance mid-event, and to adjust their strategy appropriately to reach the goal. According to Bandura (1990), self-efficacy is a psychological determinant of sport performance. He found that athletes with strong self-efficacy were more persistent, expended more effort, stayed better focused, and created more viable strategies than athletes who had weaker sense of self-efficacy. Studies by Martin and Gill (1995) suggested that an athlete's stable level of confidence, i.e. trait-confidence, would positively predict state-confidence. Thus, an athlete with a strong sense of self-efficacy might be *less* nervous and *more* aware of his progress throughout the race, as well as more able to pace and plan for split-times, or in other ways make adjustments to meet goals more precisely.

Overview of Marathon Runners

Various studies by Summers, Machin and Sargent (1983), Carmack and Martins (1979), Harris (1981), Summers, Sargent, Levey, and Murray (1982), found that the reasons most often cited for attempting a marathon were: personal challenge, (24%), sense of achievement (14%), and personal satisfaction (10%). The decision to train for, and participate in, a marathon involved a combination of the three states: intrinsic motivation, extrinsic motivation, and amotivation. Intrinsic motivation required an athlete to look at his/her personal gains in health and mastery. Extrinsic motivation involved the recognition that accompanies the completion of a marathon. Amotivation was the pain and monotony involved in the training that could cause an

athlete to reconsider the merit of his or her other motivations. Training for a marathon provided participants with goals that were challenging yet attainable. According to Lawler (1971) the successful training format was found to be one which outlined a system in which the participant progressed in manageable steps. The rite of passage bestowed in the completion of a marathon was also found to be a strong motivator.

Summers, Machin, and Sargent (1983) found that the motivations of marathon participants fell into seven categories: goal achievement, tests of personal worth, physical health, peer pressure, curiosity, enjoyment, and a category they labeled as "too specific to classify"(p. 325). The reasons given for initiating marathon training were positively related to those which motivate most runners, i.e., physical fitness and weight control, tension reduction and mood elevation, and, the enhancement of personal identity. Results of a survey of runners who had completed a marathon noted that 25 % of participants had a perceived outcome of personal achievement, and 30 % had a perceived outcome of increased self-satisfaction. Personal insights of this group included the following: 24 % of participants reported a new respect for "my ability to persevere under duress," 21 % reported "I can do something I set my mind to," 13 % reported "I know my own capabilities / limitations better," 11 % reported "increased confidence," and 9 % reported "I have uncovered qualities I felt I lacked"(p.322). Clough, Shepherd, and Maughan (1989) found the challenge and the resulting feelings of achievement and self-development were the most important reasons cited for long distance running. The significance of completing a marathon extended beyond the event itself to enhance other aspects of a participant's life.

Masters and Ogles (1995) found that the motivation of a marathon runner is a function of experience. Master-level marathon runners named social identity as their chief motivator. The primary motivators for Intermediate marathon runners were personal performance and psychological rewards. Novice marathon runners most often cite health, weight concerns, and personal goal achievements as their motivations to train for and run a marathon.

Runners 20 to 28 years of age cited life meaning and personal goal achievement as their motivations to train and run a marathon. Runners over 50 years of age most frequently endorsed training and running a marathon as ways to develop and maintain a level of fitness and health which included weight control benefits (Ogles and Masters, 2000).

Ogles, Masters, and Richardson (1995) compared the male and female runners in marathons, half-marathons, or 5k/10k runs. Woman were more likely than men to endorse a broad range of motives, including weight concerns, affiliation, self-esteem, life meaning, and psychological coping. Women also reported more psychological benefits from running than men did, including the enhancement of their self-esteem.

As marathon runners gain experience, the initial importance of physical fitness and weight control as motivating factors diminish, while tension reduction, mood elevation, and identity become greater motivators (Johnsgard, 1985). As the age of a runner increases, motivation also appears to shift from “extrinsic goals such as personal best time, to the intrinsic goal of mastery over one’s body” (Summers, Machin, and Sargent, 1983, p. 328).

Cross-culturally, Martin and Gill (1995) found that there was no significant difference in self-efficacy and goal orientation among Filipino, American, and Taiwanese marathon runners.

Clearly the motivations vary for training and participating in a marathon with age, gender, and mastery, but within each population, the motivations of runners appear to remain consistent.

Overview of Marathon Walkers

Dave McGovern (2000) believes that the marathon walker is responsible for the fastest growing trend in marathoning. Over 77 million people have turned walking into the leading fitness activity in America (Seiger and Hession, 1990). A number of reasons account for the surge in popularity of this activity. Fewer injuries are associated with walking (Margen, 1995). The benefits of walking have been increasingly promulgated by the medical profession (U.S. Department of Health and Human Services, 1996). McGovern (2000) says that charities found that many more people, nearly 30,000 in 2000, were willing to collect donations in return for training to walk or run a marathon. A further reason for the increased popularity of walking a marathon, according to Lizzy Kemp Salvato; American Record Holder in 50 and 100 mile walk, former Head Walking Coach, San Diego/ Hawaii Chapter "Team In Training", is that, in recent years, race directors have taken note of the increased number of people interested in walking marathons and realized that they could make more money by making marathons more walker-friendly (personal communication,

September 15, 2002). For example, walker-friendly marathons offer extended time limits. Instead of the traditional 4 or 5 hour finishing time, walker-friendly marathons have extended this to 9 hours. Additionally the walker now is supported with well marked courses, and convenient aid stations, and upon completion of the marathon, the walker is given an official finishing time, a T-shirt, and a medal, the same as runners.

Before the 1990's, athletes who walked during a marathon did not talk about that aspect of the effort because that would mean that the athlete had *failed to run* the 26.2 miles (McGovern, 2000, p.20). Joggers and walkers were not considered serious participants by race directors. The marathon was considered a sport of elite athletes, not of less experienced participants. Walking a marathon has grown in popularity since this category was added to the charity training program, "Team In Training" (TNT), in 1996. That year the Leukemia and Lymphoma Society began welcoming walkers in their TNT program, the largest endurance training program in the United States at that time. By 2002, more than 15 organizations had followed the lead of TNT, including the Arthritis Foundation's "Joints In Motion" and the American Diabetes Association's "Team Diabetes" (McGovern, 2000).

With the increased popularity of charity marathon training, "Recreational marathoning had evolved into a mass participation activity where being part of a happening was more important than finishing with a fast time" (McGovern, 2000, p. 22).

A 1993 survey conducted by the American Sports Data Company found that two thirds of walkers were woman, with an average age of 46, and the average age of the male walkers was 54. This company also found that the age of dedicated walkers was falling, and that most people who had been walking for a year or less to increase their fitness were younger than 34 (Iknoian, 1995).

Salvato was of the opinion that most of the people who joined TNT or other similar programs needed extrinsic motivation to accomplish their goals. She felt that these participants needed to hear from others that they were able to walk a marathon, and wanted external validation for their efforts (personal communication, September 15, 2002).

Chapter 3

METHODOLOGY

Overview of the Study

This research study compared the motivations, performance goals, and self-efficacy of marathon runners and walkers. In order to do this the following psychometric measures were used: the Motivation of Marathoners Scales (MOMS) and the Sport Motivation Scale (SMS) for motivation goals, the Sport Orientation Questionnaire (SOQ) for performance goals, and the State-Sport Confidence Inventory (SSCI) and the Trait-Sport Confidence Inventory (TSCI) for self-efficacy.

Subjects

This study evaluated "Team In Training" (TNT) participants training for and completing the Suzuki Rock 'n Roll Marathon held in San Diego, California in 2002 and the Mayors' Midnight Sun Marathon held in Anchorage, Alaska in 2002. Seventy-three runners and 28 walkers competed a pre-training survey, and 42 runners and 22 walkers completed a post-marathon survey.

Ethical Considerations

The Protection of Human Subjects Committee of the San Diego University for Integrative Studies (SDUIS) approved the proposal for this study. As a requirement for participation, candidates gave their informed consent with an online agreement, "Yes, I consent to participate in this survey (click here)." in order to access the psychometric measures (Appendix B). Participation in this study had no known risks.

Variables

The independent variables in this study were two types of athletes, the marathon runner and the marathon walker.

The dependent variables consisted of intrinsic motivation and extrinsic motivation, as measured by the Motivation of Marathoners Scales (MOMS), and the Sport Motivation Scale (SMS); performance goals, as measured by the Sport Orientation Questionnaire (SOQ); and self-efficacy, as measured by the State-Sport Confidence Inventory (SSCI) and the Trait-Sport Confidence Inventory (TSCI).

Confounds

Several confounds were due to the subject population tested and the methods used to collect the data. The population of the study was committed to participation in a charity event; this may have skewed the motivational outcomes in comparison to the general population of marathon participants. In addition, as the population for this

study was drawn from a sampling frame ("Team In Training" volunteers) the study sample may not have been representative of all marathon runners and marathon walkers. The participants of the study self-selected, and so they may not have represented marathon runners and marathon walkers as a whole.

The same psychometric measures were used in both the pre-training and post-marathon surveys. Consequently respondents may have tried to keep their post-marathon responses consistent with their pre-training responses.

Statistical analyses of data from the marathon runners and marathon walkers did not include finishing time. Finishing times may have more clearly delineated marathon runners and marathon walkers and led to a large separation in the motivation, performance goals, and self-efficacy variables. Testing was conducted over the Internet and so there was no way to control for respondents' environmental or psychological variables.

Procedures were implemented to minimize confounds in this study. Instruments with established reliability and validity were administered in a standardized way to reduced response bias. Testing was completed over the Internet, and there were no time limits imposed. The researcher received permission to use and reproduce these psychometric measures in this study. The demographic data collected included the age, gender, and years of education. Participants were asked to described their experience as a marathoner as novice, intermediate, or master.

Design

The study used a quasi-experimental design. The instruments were self-administered psychometric measures, in the form of surveys, questionnaires, and scales, used for gathering data during pre-training and post-marathon periods of time.

Study Procedures

Consent form and psychometric measures were made available online at www.262research.org. (Appendix B). Participants were directed to this website during the pre-training "kick-off" meeting on January 23, 2002, where people who had signed up for an event first met their coach, mentors, and teammates. A request was made for volunteers to take part in the study. Prospective subjects then filled out the consent form and psychometric measures on the Internet at www.262research.org. (In order to access the psychometric measures prospective participants had to read and give their consent first.)

After the event, an e-mail message prompted participants to revisit the web site and complete the finisher's survey. Entrants who had dropped out of the training were mailed a questionnaire developed by the researcher, which attempted to determine why dropouts were unable to attain their goal. Each participant completing both pre-training and post-marathon psychometric measures received a T-shirt designating them as a "FINISHER 26.2 Research.org 2002 Survey Marathon."

Statistical Design

This study utilized a repeated measure, two group, pre-test - post-test quasi-experimental design. Pre-marathon training scores established a baseline and post-test survey scores were taken after the subjects completed the marathon. ANOVA was used to analyze all the data.

Motivation of Marathoners Scales

Reliability and Validity

Crandall (1980) recommended that motivation be investigated by specific sport, rather than by testing all athletes regardless of their sport. That is, there are distinct reasons why participation in one particular sport is selected and continued over participation in another. The Motivation of Marathoners Scale (MOMS), developed by Masters, Ogles, and Jolton (1993) measured the independent variable motivation among runners and walkers. The MOMS utilizes a 56-item scale. Responses are indicated on a 7- point ordinal scale, with 1 being "not a reason" and 7 being "a most important reason."

The reliability of the MOMS has been established with a coefficient alpha internal consistency coefficients (N=482) ranging from .80 to .92 and a second sample (N=712) ranging from .80 to .93.

The validity of the MOMS has been confirmed by factor analysis using LISREL 7 (N=712). In this study, participants' scores on the Competition and Personal Goal

scales were found to be negatively correlated with their average and best marathon finish times, and they were positively correlated with their training miles per week as well as with their responses to the three scales of the Sport Orientation Questionnaire (Ostrow, 1996).

Assets and Limitations

The Motivation of Marathoners Scales (MOMS) is easy to read and understand, and positively correlates with the Sport Orientation Questionnaire.

It was a concern that the MOMS may not be a sensitive instrument for novice runners and walkers; therefore it may have provided findings with little or no statistical significance for subjects who are novice runners or walkers. Thus a second parametric measure, The Sport Motivation Scale, was utilized to provide a better assessment of participants' motivation.

Sport Motivation Scale

Reliability and Validity

The Sport Motivation Scale (SMS) was originally written in French and subsequently translated to English. Two English studies have been conducted to verify the reliability and validity of the English translation. The SMS offers 28 items as an answer to the question, "Why do you practice your sport?" Subjects must rate each

using a 7- point ordinal scale. The SMS has seven subscales that assess participants' Intrinsic Motivation (IM), IM to Know, IM to Accomplish Things, and IM to Experience Stimulation, and Extrinsic Motivation (EM) (Identified, Introjected, and External and Amotivation). Test - retest reliability (*N*=593) coefficients ranged from .58 to .84. Validity was confirmed by factor analysis (LISREL 7) (*N*=593) that supported the structure of the SMS (Pelletier et al., 1995).

Assets and Limitations

Reviewing the self-determination component of motivation gave a more complete explanation of the differences and similarities between marathon runners and marathon walkers.

Sport Orientation Questionnaire

Reliability and Validity

Reliability and validity studies on the Sport Orientation Questionnaire (SOQ) developed by Gill and Deeter (1988) indicated that the SOQ is a psychometrically sound and useful measure of multidimensional sport-achievement orientation. This test consists of 25 questions answered on a 5-point Likert format. The SOQ yields three subscales which measure win orientation, goal orientation, and competitiveness.

Averaged test-retest alpha reliability coefficients ranged from .73 to. 89, .73 goal, .82 win, and .89 competitiveness, and the intraclass correlation coefficients ranged from .84 to .94, .84 goal, .90 win, and .94 competitiveness. Construct validity was supported in that the competitiveness subscale differentiated students enrolled in

competitive sport classes from students enrolled in noncompetitive classes. Competitive sport participants were also differentiated from nonparticipants. Win and goal orientation subscales appeared to be less discriminating variables (Ostrow, 1996).

Assets and Limitations

The Sport Orientation Questionnaire questions are easy to read and understand. This instrument was used to assess the participants' competitiveness, desire to win, and desire to achieve personal goals in sport activities.

State-Sport Confidence Inventory and Trait-Sport Confidence Inventory

Reliability and Validity

Both the State Sport-Confidence Inventory (SSCI) and the Trait-Sport Confidence Inventory (TSCI) consist of the same 13 items, and use a 9-point Likert scale to indicate how confident an individual feels about competing in an upcoming event. The SSCI measures how a participant feels *right now,* in comparison to the most self-confident athlete they know. The TSCI measures how a participant usually feels compared to the most self-confident athlete they know (Vealey, 1986). Alpha reliability has been reported as .95 for the SSCI and .93 for the TSCI. Concurrent validity was established by the positive correlation (.69) of the SSCI with the state self-confidence scale of the CSAI-2. Concurrent validity of the TSCI was established

with the Sport Competition Anxiety Test, the Physical Self-Efficacy Scale, Rotter's Internal-External Control Scale, and Rosenberg's Self-Esteem Scale. (Ostrow, 1996).

Assets and Limitations

SSCI and TSCI were used to measure changes in self-efficacy of the participants. The principal limitation of the SSCI and the TSCI was that the questions provided rely on the respondents' ability to reflect on their feelings and to stay on task while doing so. In reviewing the responses, one may surmise that the respondents appeared to select a single number and use it to respond to every question.

Research Hypotheses

H.1: There is no significant difference in changes in motivation between marathon runners and marathon walkers who have trained for, and completed, a marathon.

H.2: There is a significant difference in changes in the performance goals between marathon runners and marathon walkers who have trained for, and completed, a marathon.

H.3: There is no significant difference in changes of self-efficacy between marathon runners and marathon walkers who have trained for, and completed, a marathon.

Chapter 4

RESULTS

Demographics

The population of this study was recruited from a total of 352 "Team In Training" participants signed up to train for the Suzuki Rock 'n Roll Marathon and the Mayors' Midnight Sun Marathon. The initial psychometric measures were taken by 101 participants: 73 marathon runners and 28 marathon walkers. Sixty-four participants, 42 marathon runners and 22 marathon walkers, took both pre-training and post-marathon psychometric measures, accounting for 18 % of the TNT population.

Table 2:

Subject Retention

Participants	Pre-Test	Post-Test	Retention Rate
Runners	73	42	57 %
Walkers	28	22	78 %

Based on age and sex this study included runners that were statistically close to the norms for "Team In Training" (TNT) participants (personal communication, Dennis Ahlman, National Director of Team In Training, Leukemia and Lymphoma Society, September 18-20, 2000).

Table 3:

Population Demographics

	TNT*		Current Study	
	Runners	Walkers	Runners	Walkers
Female	75%	75%*	74%	77%
Male	26%	26%*	26%	23%
Mean age	35	35*	34	47

* TNT did not distinguish between runners and walkers.

Table 4:

Comparison of Marathon Runners' and Marathon Walkers' Finishing Time

Source	Fastest Finishing Time	Slowest Finishing Time	*M*	*SD*
Marathon Runners	3 hr, 38 min	7 hr, 5 min	5 hr, 4 min	1 hr, 29 min
Marathon Walkers	4 hr, 59 min	8 hr, 10 min	6 hr, 53 min	1 hr, 32 min

Hypothesis 1

There is no significant difference in changes in motivation between marathon runners and marathon walkers who have trained for, and completed, a marathon.

The summary of the means for the MOMS 9 subscales and the marathon runners and walkers pre-test and post-test are presented in Table 5. The F-test analysis of the interaction between the following groups, runners and walkers, and time – pre-test and post-test –gave a value of .893 with 124 degrees of freedom which failed to reach statistical significance at the .05 level of probability. However, this F ratio did not address all the individual changes of runners and walkers across the 9 scales. These differences were addressed by a Studentized Range Statistic and gave a value of 6.54; therefore, any change from the pre-test to post-test of the magnitude 6.54 would be statistically significant. The analysis of the data in Table 5, indicated one significant item at the .05 level; this change was on "Health Orientation Runners." The mean changed from 16.3 in the pre-test to 28.4 in the post-test, a sizable and significant change; however, no additional changes were observed between the groups. The interaction F ratios of the 9 subscales of the MOMS are presented in Table 6.

Table 5:

Summary Scores Pre-Test and Post-Test Across 9 Subscales of the MOMS for Runners and Walkers

	Pre-Test		Post-Test			
Subscale	*M*	*SD*	*M*	*SD*	Δ	*SD*
Life Meaning, Runners	19.9	10.4	20.7	10.4	+0.8	3.22
Life Meaning, Walkers	19.6	10.7	16.1	8.4	-3.5	2.90
Psychological Coping, Runners	22.4	19.6	23.4	12.7	+1.0	3.56
Psychological Coping, Walkers	23.3	20.4	21.1	10.9	-2.2	3.30
Self-Esteem, Runners	33.2	10.7	30.3	14.4	-2.9	3.79
Self-Esteem, Walkers	30.4	12.3	30.0	12.0	-0.4	3.46
Health Orientation, Runners	16.3	7.5	28.4	13.3	+12.1	3.65
Health Orientation, Walkers	30.4	7.9	29.8	9.6	-0.6	3.10
Weight Concern, Runners	16.7	7.0	16.2	6.1	-0.5	2.47
Weight Concern, Walkers	17.3	6.5	17.9	5.6	+0.6	2.37
Personal Goal Achievement, Runners	25.4	7.6	27.1	8.2	+1.7	2.86
Personal Goal Achievement, Walkers	25.1	10.3	30.8	18.0	+5.7	4.23
Competition, Runners	6.5	4.4	7.3	3.4	+0.8	1.84
Competition, Walkers	7.5	5.5	6.9	3.2	-0.6	1.79
Recognition, Runners	15.5	8.5	17.9	8.6	+2.4	2.93
Recognition, Walkers	13.1	9.5	14.1	9.1	+1.0	3.02
Affiliation, Runners	20.1	8.2	23.8	9.7	+3.7	3.11
Affiliation, Walkers	20.0	7.6	20.6	8.5	+0.6	2.92

Table 6:

Two-Way Interaction Solution of the Principal Components of the 9 Subscales of the MOMS

Subscale	*df*	*MS*	*F*	*P Value*
Life Meaning	1	136.9	1.30	.25
Psychological Coping	1	76.4	0.28	.99
Self-Esteem	1	42.8	0.27	.99
Health Orientation	1	55.8	0.54	.99
Weight Concern	1	9.3	0.24	.99
Personal Goal Achievement	1	115.0	1.01	.35
Competition	1	14.1	0.82	.99
Recognition	1	13.3	0.17	.99
Affiliation	1	67.2	0.89	.99

The second psychometric measure used to assess motivation was the SMS. The interaction effect of groups by subscales of the SMS is presented in Table 7. None of the interaction means was found to be statistically significant at the .05 level. However, as with the previous analysis, a Studentized Range Statistic was calculated on the largest changes to see if any reached statistical significance. Using a Studentized Range Statistic post hoc, a value of 3.596 indicated that any change of that magnitude would be statistically significant. As shown in Table 8 only one variable reached the necessary magnitude of change – Extrinsic Motivation

Identified Walkers. This changed from 13.5 pre-test to 9.2 post-test. These scores indicated that marathon walkers developed amotivation as a function of participation in a marathon.

Overall, neither the MOMS nor the SMS showed any statistically significant difference in motivation between marathon runners and marathon walkers; thus, the hypothesis was accepted.

Table 7:

F Ratios for the Interaction Effect of the 7 Subscales of the SMS

Subscale	*df*	*MS*	*F*	*P Value*
Intrinsic Motivation – Stimulation	1	18.7	.035	.99
Intrinsic Motivation – Accomplishment	1	0.38	0.1	.99
Intrinsic Motivation – to Know	1	3.9	.09	.99
Extrinsic Motivation – Identified	1	19.6	.63	.99
Extrinsic Motivation – Introjected	1	.2	.006	.99
Extrinsic Motivation – External Regulation	1	3.8	.20	.99
Amotivation	1	10.0	2.3	.10

Table 8:

Means and Standard Deviations Comprising the Main Effects Across the 7 Subscales of the SMS

Subscale	Pre-Test		Post-Test			
	M	SD	M	SD	Δ	SD
Intrinsic Motivation – Stimulation – Runners	17.7	8.5	16.8	5.9	-0.9	2.43
Intrinsic Motivation – Stimulation – Walkers	13.2	6.9	13.9	7.5	+0.7	2.74
Intrinsic Motivation – Accomplishment – Runners	15.4	5.5	15.5	6.0	+0.1	2.45
Intrinsic Motivation – Accomplishment –Walkers	12.8	6.7	12.6	6.1	-0.2	2.47
Intrinsic Motivation – to Know – Runners	12.9	5.7	13.7	5.7	+0.8	2.39
Intrinsic Motivation – to Know – Walkers	12.6	8.2	12.6	8.1	0.0	2.85
Extrinsic Motivation – Identified – Runners	12.7	5.8	13.5	5.5	+0.8	2.35
Extrinsic Motivation – Identified – Walkers	13.5	5.5	9.2	5.4	- 4.3	2.32
Extrinsic Motivation – Introjected – Runners	10.1	5.6	12.8	5.9	+2.7	2.43
Extrinsic Motivation – Introjected – Walkers	11.2	5.1	10.8	4.4	-0.4	2.10
Extrinsic Motivation – External Regulation – Runners	10.0	4.7	10.9	4.9	+0.9	2.21
Extrinsic Motivation – External Regulation – Walkers	6.7	2.8	7.0	3.5	+0.3	1.87
Amotivation – Runners	4.9	1.7	5.0	2.2	+0.1	1.48
Amotivation – Walkers	4.5	1.4	5.7	2.9	+1.2	1.79

Hypotheses 2

There is a significant difference in changes in the performance goals between marathon runners and marathon walkers who have trained for, and completed, a marathon.

The means of subscales comprising the SOQ are presented in Table 9 and the interactions which addressed the hypothesis are presented in Table 10. In the subscale "competitiveness," means for the marathon runners increased from 32.3 pre-test to 33.6 post-test, while the means for the marathon walkers decreased from 37.8 pre-test to 34.1 post-test. In the subscale "goal orientation," means for the marathon runners increased from 9.4 pre-test to 9.5 post-test, while "goal orientation" for the marathon walkers decreased from 10.7 pre-test to 9.4 post-test. The F-ratios were low and did not provide overall support for the hypothesis. A Studentized Range Statistic calculated on these three subscales failed to indicate any difference or change for either group from the pre-test to post-test at the .05 level of probability (Studentized Range Statistic was 6.2 for "competitiveness" and 2.1 for "goal orientation"). These data also failed to provide support for the hypothesized changes and, therefore, the hypothesis was rejected.

Table 9:

Summary Scores Pre-Test and Post-Test for the Runners and Walkers Across the 3 Subscales of the SOQ

	Pre-Test		Post-Test			
Subscale	*M*	*SD*	*M*	*SD*	Δ	*SD*
Runners, Competitiveness	32.3	9.9	33.6	9.3	+1.3	3.05
Walkers, Competitiveness	37.8	10.4	34.1	8.9	-3.7	2.98
Runners, Win Orientation	18.70	4.8	19.2	5.8	+0.5	2.41
Walkers, Win Orientation	21.1	5.5	20.1	6.0	-1.0	2.45
Runners, Goal Orientation	9.4	3.1	9.5	3.1	+0.1	1.76
Walkers, Goal Orientation	10.7	3.9	9.4	3.5	-1.3	1.87

Table 10:

Summery of ANOVAs Statistics for the Interaction of the 3 Subscales of the SOQ

Subscale	*df*	*MS*	*F*	*P Value*
Competitiveness	1	178.9	1.92	.25
Win Orientation	1	12.5	0.41	.99
Goal Orientation	1	13.4	1.21	.35

Hypothesis 3

There is no significant difference in changes of self-efficacy between marathon runners and marathon walkers who have trained for, and completed, a marathon.

The mean scores for the State and Trait Inventory are presented in Table 11. The F-ratio for these scales is presented in Table 12. The data indicated a trend for all groups to increase from pre-test to post-test, but the magnitude of the change between the groups was not statistically significant at the .05 level. The hypothesis could be accepted.

Table 11:

Summary Scores Pre-Test and Post-Test for Runners and Walkers on State and Trait Inventory

Subscale	Pre-Test		Post-Test			
	M	*SD*	*M*	*SD*	Δ	*SD*
Runners, State	65.5	23.6	70.1	24.0	+4.6	4.90
Walkers, State	59.2	28.1	61.8	23.2	+2.6	4.82
Runners, Trait	62.4	23.3	70.1	18.9	+7.7	4.35
Walkers, Trait	64.9	22.2	67.6	24.5	+2.7	4.95

Table 12:

An F Test of the Pre-Test and Post-Test Differences for the Runners and Walkers Combine Over the Scales State- and Trait- Sport Confidence Inventory

Subscale	*Df*	*MS*	*F*	*P Value*
State	1	364.3	0.61	.99
Trait	1	761.3	1.58	.25

Chapter 5

Review, Discussion and Implications

The purpose of this study was to determine if the motivation needed to walk and complete a full marathon was similar to the motivation needed to run a full marathon. This study also investigated whether there were significant differences in performance goals between marathon walkers and runners. A final objective of this research was to determine whether the self-efficacy of walkers and runners was similar or not.

Motivation

The study failed to show many statistically significant differences in the motivation of marathon runners and walkers. However, analyses of the nine subscales of the MOMS reveals a number of trends worthy of discussion. Of the two physical health motive subscales, the "Health Orientation" subscale was the only scale to provide a statistically significant change from pre-test to post-test for marathon runners. The increase was substantial with a positive change in score from 16.3 to 28.4, i.e., an increase of 12.1. This may be attributed to the added attention to diet, hydration, rest, and cross-training that preparation for running a marathon demands. Novice marathon runners were found to most often cite health, weight concerns, and personal goal achievements as their motivations to train for, and run, a marathon (Master and Ogles, 1995). In contrast, the scores of marathon walkers decreased from 30.4 to 29.8, a change of 0.6 that was considered negligible. It is interesting to note that although the runners' scores increased and the walkers' scores decreased, possibly due to the action of training and

participation in a marathon, the groups ended with scores differing by only 1.4 points. One may surmise that the action of training and participation in a marathon leveled the "playing field" in regard to "Health Orientation." Scores for "Weight Concern," the other physical health motive identified by the MOMS, demonstrated little movement for either runners or walkers.

The psychological motives subscales within the MOMS comprised "Psychological Coping" and "Self-esteem," whose changes in scores were unremarkable. However the "Life Meaning" scores showed a decrease for walkers from 19.6 to 16.1, a drop of 3.5 points. One explanation for this change could be that the walkers had a *meaningful life* at the start of training but had to *give up* important components of their lives in order to accommodate the demanding training schedule required when preparing for the marathon.

The achievement motives subscales within the MOMS included "Personal Goal Achievement" and "Competition." In the subscale "Competition," the difference was negligible, but the increase of 5.7 in "Personal Goal Achievement" for marathon walkers was very close to statistical significance. This is consistent with the concept that a marathon takes on the mantle of a personal journey of discovery through endurance.

Finally, in the MOMS subscales of social motives, marathon runners show an increase in both the "Recognition and "Affiliation" subscales, with "Affiliation" increasing by 3.7 points. This is consistent with the literature reporting that the primary motivators for marathon runners were personal performance and psychological rewards (Masters and Ogles, 1995). Summers, Machin and Sargent (1983) reported that 25 % of marathon runners had a perceived outcome of personal achievement, and 30 % had a perceived outcome of increased self-satisfaction. As

runners gain experience, the initial importance of physical fitness and weight control as motivating factors diminishes, while tension reduction, mood elevation, and identity become greater motivators (Johnsgard, 1985).

Athletes are motivated by either mastery or performance (Roberts, 1984). Mastery may be considered intrinsic, performance extrinsic. Mastery moves along a continuum of self-perceived competence, from high to low poles (Pelletier et al., 1995). Performance may be considered on an axis from success to failure, depending on the attainment or lack of attainment of performance goals (Vallerand and Loisier, 1999). The researcher has proposed the Mastery-Performance Axis of Motivation to illustrate this concept (Figure 2).

The SMS was administered to corroborate the findings of the MOMS. Once again the study failed to produce statistically significant differences in the motivation of marathon runners and marathon walkers. But, once again, the subscales offered some insights into the motivation. The only subscale that produced a statistically significant change from pre-test to post-test was "Extrinsic Motivation – Identified" for walkers. The scores moved from 13.5 to 9.2, a decrease of 4.3 points. The same scores for runners were relatively stable from pre-test to post-test, increasing by only 0.8 points. Thus, there was a trend for the marathon walkers who, through the action of training and participation in a marathon, may have found the activity to be less important to their development as a person and more about their commitment to endure for a cause. On the subscale "Amotivation," the walkers' scores increased from pre- to post-test from 4.5 to 5.7. Though not statistically significant, this is possible evidence that walkers' motivation had decreased. Runners' scores moved up from 4.9 to 5.0 – mentioned only to illustrate that "Amotivation" was relatively the same for runners as for walkers.

In summary, the analysis of the SMS indicated a high degree of overlap between runners and walkers. In short, the experience of participation in a marathon does not appear to have differentially impacted the participants. There was no statistically significant difference in motivation between runners and walkers.

Performance Goals

This study failed to demonstrate statistically significant differences in performance goals of marathon runners and marathon walkers. The SOQ subscales are "Competitiveness," "Win Orientation," and "Goal Orientation." In each subscale, the runners' scores increased and the walkers' scores decreased pre- to post-test. It is of interest to note that all of the post-test scores for both runners and walkers were within 1 point of each other. The only other score, though still well below the 6.2 difference to show statistical significance, is "Competitiveness" for the walkers, which moved from 37.8 to 34.1, a decrease of 3.7 points from pre- to post-test. The result may be attributed to the walkers' lack of experience in an endurance event and a reaction to the harsh realities of training and participation in a marathon.

It is interesting to compare the results of this study with the results of the norms for the SOQ provided by Diane Gill (personal communication, October 30, 2001, Appendix I). This study found that goal orientation and competitiveness were less emphasized by TNT marathon participants than was evidenced by the norms for the SOQ. This is not unexpected, based upon the researcher's experience, because coaches of "Team In Training" place less emphasis upon winning and competitiveness. In the Theory of Planned Behavior, Icek Ajzen (1991) proposed that intention was fueled by attitude, control, and subjective norms, for example, the

perceived social pressure to perform. He believed that a positive attitude about the behavior, a feeling that the behavior was within one's ability and an expectation that the actions taken would win social approval, all combined to predict success in the accomplishment of an intended goal.

It is this researchers' opinion that Ajzen's theory explains the success of the TNT program.

Self-Efficacy

This study failed to show any statistically significant differences in the self-efficacy of marathon runners and walkers. All of the SSCI and TSCI scores increased pre-test to post-test, and the increase for runners in both State and Trait were statistically significant. The results support the theory that training and participation in a marathon have a positive effect on self-efficacy. A more robust study may have shown these differences to be statistically significant.

In the researcher's opinion, self-efficacy is an integral element of exercise participation and adherence, and she believes assessing components that contribute to increased self-efficacy might offer viable basis for increasing exercise participation and adherence. This study found that the self-efficacy of both marathon runners and marathon walkers tended to increase through training for, and completion of, a marathon.

Confounds

A number of confounds were identified during this research process and these require consideration when interpreting the results. The data was collected via the Internet, and along with the convenience of this media came a number of inherent problems. Most important was

that there was no way of knowing whether the psychometric measures were completed by the marathon participant. Although it is unlikely that anyone would go through the trouble of completing the extensive psychometric measures unless connected with the study, there was no screen of participants to eliminate such a possibility. A second confound was the limitation of certain Internet Service Providers (ISP). For example, America On Line (AOL) subscribers had trouble accessing the psychometric measures or, in some cases, returning the completed psychometric measures. In those cases, the psychometric measures were returned by surface mail. Such difficulties with AOL may have reduced the rate of successful participation. A number of participants changed e-mail addresses during the course of the study. This was usually remedied by obtaining new addresses by telephone. The State and Trait Sport Confidence Inventory might have been challenging for a number of the participants to complete. This was suggested by the lack of variance in the answers within an inventory. In other words, it appears that some of the participants chose a single representative number and used it across the board to answer each of the thirteen questions on each inventory. This is therefore another potentially important confound.

Despite confounds encountered during this study, the findings offer practical benefits for those involved in sport psychology. The study suggests that amotivation is greater for walkers than runners, and this should be addressed by those working with people embarking on this endurance sport.

Importance of the Study

The results of this study are important for a number of reasons:

1. This is the first study of marathon walkers.

2. Walkers' and runners' motivation and self-efficacy tended to be similar. This finding may encourage more people to take up walking as their chosen form of exercise.

3. This research may further help popularize walking as an athletic activity to consider by all those wishing to become fit.

4. The component of competitiveness in performance goals differed between marathon runners and marathon walkers. Walkers were less interested in performance goals than runners. These data provide a new model for goal setting for future marathon walking participants. The result may be attributed to the walkers' lack of experience in an endurance event and a reaction to the harsh realities of training and participation in a marathon.

5. This study may help skeptics accept marathon walkers as athletes in their own right.

6. This study has provided information which may encourage injured runners to substitute walking, when appropriate, to reduce physical stress but maintain fitness.

Implications for Further Research

As this is the first study of marathon walkers, the findings offer encouragement and opportunity for further research in this field. This preliminary study compared data from a small number of marathon runners and walkers. Within-group comparisons on larger samples of various types of walkers – novice, intermediate, and master walkers – would increase understanding of this new sport. Other research might compare finishing time and performance goals of marathon participants. The current research involved a highly selected sample of walkers participating in "Team In Training" (TNT) events. Other studies might evaluate other and larger population of walkers. It would be interesting to compare athletes who walk or run a marathon for a cause with those participants who use marathons more as a form of recreation. Case studies of marathon walkers may discover further variables to investigate. Longitudinal studies of marathon walkers might provide even further insight into their motivation, performance goals, and self-efficacy and the changes in these factors over time. As a group, American adults are dangerously sedentary; further research in this area may stimulate life-enhancing (as well as life-saving) behavioral changes for a great number of them. Marathon walking has a great deal to offer us all.

The results of this study are consistent with the hypothesis that once people begin a training program for a marathon they take on an exercisers' self-schema and begin to think and act like an athlete. This initiates an important self-transformation that is not easily dismantled. Once the marathoner finishes the marathon, it does not matter whether the event was run or walked. As only about 2% of the world's population has ever done so, the participant becomes part of

an elite group of athletes who have completed a marathon. Furthermore, *finisher* experience generalizes to other endeavors; they now have an expanded knowledge of their range of capability. It would be interesting to design future research to investigate whether the habits acquired during training for a marathon endure.

Impact on Sport Psychology

This study has highlighted a portion of the endurance sport population that has not previously been studied: the growing trend of ordinary people undertaking extraordinary physical events. For anyone willing to put in the time and effort, marathon walking offers a rite of passage that tests one's mettle. Until recently, such an experience was available exclusively to elite athlete runners. Sport psychologists study the elite athletes in order to find keys of motivation or "super adherence" and then extrapolate these findings to the general public. This study of marathon walkers offered a contrast to previous findings about elite athletes' motivation and "super adherence."

References

Abramson, L. Y., Seligman, M. P., Teasdale, J.D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology*, *87*,(1), 49-74.

Ajzen, I. (1991). A theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*, 179-211.

Baldwin, B. (1998). Re-running marathon. *History Today*, *48,*(5),44-49.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.

Bandura, A. (1990). Perceived self-efficacy in the exercise of personal agency. *Journal of Applied Sports Psychology*, *2*, 128-163.

Boyd, M. P., & Yin, Z. (1999). Cognitive affective and behavioral correlates of self-schemata in sport. *Journal of Sport Behavior*, *22*, 288-302.

Bull, S. J. (1991). Personal and situational influences on adherence to mental skills training. *Journal of Sport & Exercise Psychology*, *13*, 121-132.

Carmack, M. A., Martens, R. (1979). Measuring commitment to running: a survey of runners' attitudes and mental states. *Journal of Sport Psychology*, *1,* 25-42.

Chaplin, J. P. (1985). *Dictionary of Psychology*. New York, NY: Dell Publishing.

Clough, P., Shepherd, J. & Maughan, R., (1989). Motives for participation in recreational running. *Journal of Leisure Research*, *21,* (4), 297-309.

Courneya, K. S., & Lettunich, J. (1991). Effects of acute and long-term exercise on self-efficacy responses on sedentary, middle-aged males and females. *The Gerontologist*, *31*(4), 534-542.

Crandalll, R. J. (1980). Motivations for leisure. *Journal of Leisure Research*, *12*, 45-54.

Csikszentmihalyi, M. (1975). Play and intrinsic rewards. *Journal of Humanistic Psychology*, *15*, 142-163.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY: Harper Perennial.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* New York: Plenum Press.

Deeter, T. E. (1989). Development of a model of achievement behavior for physical activity. *Journal of Sport & Exercise Psychology, 11*, 13-25.

Dimitrova, S. (1970). Dependence of voluntary effort upon the magnitude of the goal and the way it is set in sportsmen. *International Journal of Sport Psychology, 1*, 29-33.

Dishman, R. R. (1986). Exercise compliance: A new view for public health. *The Physician & Sport Medicine, 14*, 127-145.

Duda, J. L. (1989). The relationship between task & ego orientation and the perceived purpose of sport among male & female high school athletes. *Journal of Sport & Exercise Psychology*, *11*, 318-335.

Easterbrooks, P., & Courney, K. S. (1997). Relationships among self-schema, intention, and exercise behavior. *Journal of Sport and Exercise Psychology*, *19,* 156-168.

Elliot, E. S. & Dweck, C. S. (1988). Goals: An approach to motivation achievement. *Journal of Personality & Social Psychology*, *54*, 5-12.

Federick, C. M., & Ryam, R. M. (1995). Self-determination in sport: A review using cognitive evaluation theory. *International Journal of Sport Psychology*, *26*, 5-23.

Garland, H.A. (1985). A cognitive mediation of task goals and human performance. *Motivation and Emotion 9*, 345-367.

Gill, D.L., & Deeter, T.E. (1988). Development of the Sport Orientation Questionnaire. *Research Quarterly for Exercise and Sport, 59*, 191-202.

Glasser, W. (1976). *Positive addiction*. New York: Harper & Row.

Gorman, C., Bower, A., Park, A., Stukin, S. (2002, January 21). Walk, don't run. *Time*, *159,* (3), 82.

Goudas, M., Biddle, S. J. H., Fox, K., & Underwood, M. (1995). It ain't what you do, it's the way that you do it! Teaching style affects children's motivation in track and field lessons. *The Sport Psychologist*, *9,* 254-264.

Gratin, W. F., & Nickels, C.J. (1987). An investigation of the validity of the Trait

and State Sport-Confidence inventories in predicting marathon performance. *Perceptual and Motor Skills*, *65*, 481-482.

Harris, M. B. (1981). Runners' perceptions of the benefits of running. *Perceptual and Motor Skills*, *52*, 153-154.

Hollenbeck, J., Williams, C., & Klein, H. (1989). An empirical examination of the antecedents of commitment to difficult goals. *Journal of Applied Psychology*, *74*, 18-23.

Iknoian, T. (1995). *Fitness walking*. Champaign, IL: Human Kinetics.

Jackson, S. A, & Csikszentmihalyi, M. (1999) *Flow in sports*. Champaign, IL: Human Kinetics.

Jackson, S. A. & Roberts, G. C. (1992). Positive performance states of athletes: Toward a conceptual understanding of peak performance. *The Sport Psychologist*, *6,*151-171.

Johnsgard, K. (1985). The motivation of the long distance runner: II. *Journal of Sports Medicine, 25,* 140-143.

Kagan, D. M. & Squire, R. L. (1985). Addictive aspects of physical exercise. *Journal of Sports Medicine*. *25,* 227-236.

Kendzierski, D. (1990). Exercise self-schemata: cognitive & behavioral correlates. *Health Psychology*, *9,* 69-82.

Kowal, J., & Fortier, M.S., (1999). Motivational determinants of flow: Contributions from self-determination theory. *Journal of Social Psychology, 139,* (3), 355.

Lawler, E. E. (1971). *Pay and organizational effectiveness*. New York: McGraw Hill.

Li, F., & Harmer, P. (1996). Testing the simplex assumption underlying the Sport Motivation Scale: A structural equation modeling analysis. *Research Quarterly for Exercise and Sport, 67*, (4), 396-399.

Locke E.A., & Latham, G.P. (1985). The application of goal setting to sports. *Sport Psychology Today, 7*, 205-222.

Locke E. A., Latham, G. P., Saari, L. M., & Shaw, K. N. (1981). Goal setting and task performance:1969-1980. *Psychological Bulletin, 90*, (1), 125-152.

Maehr, M. L., & Braskamp, L. (1986). *The motivation factor: A theory of personal development*. Lexington, MA: Health.

Margen, S. (Ed.). (1995). *The new wellness encyclopedia: The best-selling guide to preventing disease and maintaining your health and well-being.* University of California at Berkeley. Boston: Houghton Mifflin Company.

Markus, H., (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, *42,* 38-50.

Martin, J. E. & Dubbert, P. M., (1982). Exercise applications & promotion in behavioral medicine: Current status & future directions. *Journal of Consulting & Clinical Psychology, 50*, 1004-1017.

Martin, J. J., & Gill, D. L. (1991). The relationships among competitive orientation, sport-confidence, self-efficacy, anxiety, and performance. *Journal of Sport & Exercise Psychology, 13*, 149-159.

Martin, J.J. & Gill, D.L., (1995). Competitive orientation, self-efficacy and goal importance in Filipino marathoners. *International Journal of Sport Psychology 26*, 348-358.

Martin, J.J., & Gill, D.L (1995). The relationship of competitive orientations and self-efficacy to goal importance, thoughts, and performance in high school distance runners. *Journal of Applied Sport Psychology,* 7, 50-62.

Masters, K. S., & Ogles, B. M. (1995). An investigation of the different motivations of marathon runners with varying degrees of experience. *Journal of Sport Behavior*, *18*, (1), 69-80.

Masters, K. S., Ogles, B. M., & Jolton, J. A. (1993) .The development of an instrument to measure motivation for marathon running: The motivation of marathoners scales (MOMS). *Research Quarterly for Exercise and Sport. 16,* 134-143.

McAuley, E. (1985). Modeling and self-efficacy: A test of Bandura's model. *Journal of Sport Psychology*, *7,* 283-295.

McAuley, E. (1991). Efficacy, attributional, and affective responses to exercise participation. *Journal of Sport and Exercise Psychology*, *13,* 382-393.

McGovern, D., (2000). The *complete guide to marathon walking*. Mobile, AL: World Class Publications.

Mish, F. C. (Ed.). (1983). Merriam-Webster's collegiate dictionary (9th ed.), Springfield, MA: Merriam-Webster.

National Center for Health Statistics. (2002). *Health, United States with Chartbook on Trends in the Health of Americans.* Hyattsville, Maryland.

Nicholls, J. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychology Review, 9*, 328-346.

Ogles, B. M., & Masters, K. S. (2000). Older vs. younger adult male marathon runners: Participative motives and training habits. *Journal of Sport Behavior. 23,* 2, 130-143.

Ogles, B.M., Masters, K.S., & Richardson, S.A., (1995). Obligatory running and gender: An analysis of participative motives and training habits. *International Journal of Sport Psychology. 26,* 233-248.

Ostrow, A. C. (Ed.). (1996). *Directory of psychological tests in the sport and exercise sciences.* Morgantown, WV: Fitness Information Technology, Inc.

Pelletier, L. G., Fortier, M. S., Vallerand, R. J., Tucson, K.M., Briere, N. M., & Blais, M. R. (1995). Toward a new measure of intrinsic motivation, and extrinsic motivation, and amotivation in sports: The Sport Motivation Scale (SMS) *Journal of Sport & Exercise Psychology, 17*, 35-53.

Peterson, C., Maier, S. F., & Seligman, M. P. (1993). *Learned Helplessness: A theory for the age of personal control*. New York: Oxford University Press.

Robbins, J. M., & Joseph, P. (1984). Experiencing exercise withdrawal: Possible consequences of therapeutic and mastery running. *Sport Psychologist, 6*, 23-37.

Roberts, G. C. (1984). Achievement motivation in children's sport. In J.G. Nicholls (Ed.), *Advances in motivation and achievement*: *Vol. 3. The development of achievement and motivation* (pp. 251-281). Greenwich, CT: JAI Press.

Roberts, G. C. (Ed.) (1992). *Motivation in sport and exercise*. Champaign, IL: Human Kinetics.

Rudolph, D. L., & McAuley, E. (1996). Self-efficacy and perceptions of effort: A reciprocal relationship. *Journal of Sport & Exercise Psychology*,*18*, 216-223.

Rushall, B. S., (1995). *Mental skills training for sports*. Spring Valley, CA: Sports Science Associates.

Ryan, R. M., Mims, V., Koestner, R. (1983). Relation of reward contingency and interpersonal context to intrinsic motivation: A review and test using cognitive-e evaluation theory. *Journal of Personality and Social Psychology, 45* (4), 736-750.

Seiger, L. H., & Hesson, J. (1990). *Walking for Health*. Dubuque, IA: Brown.

Seligman, M. E. P. (1975) *Helplessness: on depression, development, and death*. San Francisco, CA: Freeman.

Summers, J. J., Machin, V. J., & Sargent, G. I. (1983). Psychosocial factors related to marathon running. *Journal of Sports Psychology, 5*, 314-331.

Summers, J. J., Sargent, G. I., Levey, A. J., & Murray, K. D. (1982). Middle-aged, non-elite marathon runners: a profile. *Perceptual and motor skills*, *54*, 963-969.

Theodorakis, Y. (1994). Planned behavior, attitude strength, role identity, and the prediction of exercise behavior. *The Sport Psychologist, 8,* 149-165.

Theodorakis, Y. (1996). The influence of goals, commitment, self-efficacy and self-satisfaction on motor performance. *Journal of Applied Sport Psychology*, *8,* 171-182.

U.S. Department of Health and Human Services. (1996). *Physical activity and health: A report of the Surgeon General*. Atlanta, GA: Centers for Disease Control.

Vallerand,R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation, In M.P. Zanna (Ed.), *Advances in experimental social psychology,* pp.271-360. New York: Academic Press.

Vallerand, R. J., & Loisier, G. (1999). An interactive analysis of intrinsic and extrinsic motivation in sport. *Journal of Applied Sport Psychology*, *11*, 142-169.

Vealey, R. S. (1986). Conceptualization of sport-confidence and competitive orientation: preliminary investigation and instrument development. *Journal of Sport Psychology 8*, 221-246.

Weinberg, R., Bruya, L., & Jackson, A. (1985). The effects of goal proximity and goal specificity on endurance performance. *Journal of Sport Psychology*, *7*, 296-305.

Weinburg, R. S. & Gould, D. (1995). *Foundations of sport and exercise psychology*. Champaign, IL: Human Kinetics.