1993

Motivational participation incentives of elite quadriplegic rugby athletes

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Order Number 1354141

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San Jose State University, 1993

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MOTIVATIONAL PARTICIPATION INCENTIVES OF ELITE QUADRIPLEGIC RUGBY ATHLETES

A Thesis

Presented to

The Faculty of the Department of Human Performance

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Masters of Arts

By

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August, 1993

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ABSTRACT

MOTIVATIONAL PARTICIPATION INCENTIVES OF

ELITE QUADRIPLEGIC RUGBY ATHLETES

by Thomas F. Ferr

The purpose of this thesis was to gain an understanding of the primary motivational factors that influence participation in sport activities by quadriplegic athletes. Subjects were 74 wheelchair athletes competing in the USQRA Quad Rugby Nationals, April 2-5, 1992, at San Jose State University. The subjects were adult males (n=68) and adult females (n=6) ranging in age from 19 to 50 years. Subjects completed a 26-item Likert-type questionnaire developed to investigate the select motivation factors that influence their sports involvement in Quad Rugby. The five participational incentive factors were identified as fitness, ego, task, social integration, and social affective. Independent samples chi-square analyses were performed to determine the association between the incentive factors and subjects' classification level and years of participation in the sport. Results from the cross-tabulation data analyses are used to discuss the findings. Intrinsic items, which factor into the task incentive factor, were a primary motivational incentive for participation in Quad Rugby by the subjects of this study.

ACKNOWLEDGEMENTS

I wish to express my appreciation and gratitude to the members of my thesis committee, Dr. David Furst and Dr. Emily Wughalter, for their input in the development of this thesis. I am especially thankful for the advice, encouragement, and guidance of my thesis committee chair, Dr. Nancy Megginson.

I would like to thank my family, particularly my mother Dorothy and grandmother Elsie, for their unending love and support.

Finally, and most importantly, I wish to thank my wife, Iriss, for her ceaseless love and encouragement. Her patience, faith, and encouragement throughout my studies were, and always will be, an invaluable inspiration in my life.

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CHAPTER ONE

INTRODUCTION

Throughout history, individuals with a spinal cord injury (SCI) were viewed as weak and sickly. Life expectancy for these individuals was short (Guttmann, 1976a). Unfortunately, for many years, members of the medical community perpetuated a negative prognosis and attitude towards life for disabled individuals (Guttmann, 1976b).

As a result of the increasing number of individuals with a SCI during World War II, specialized rehabilitation units were established in hospitals in Great Britain, Canada, and the United States (Guttmann, 1976a). Rather than being scattered around a variety of neurosurgical, medical, and orthopedic hospital wards, SCI patients were congregated into a specialized unit which had adopted a multidisciplinary medical approach. This approach included medical specialists who worked with the patients from the onset of the SCI throughout all aspects of the physical, psychological, and social rehabilitation process (Guttmann, 1976b). Early advocates of this SCI rehabilitation approach in the United States were Donald Munro, Ernest Bors, and Herbert Talbot (Guttmann, 1976a).

Sir Ludwig Guttmann, a physician and leader in this multidisciplinary approach at the Spinal Injuries Center at the Stoke Mandeville Hospital in Aylesbury, England,

introduced sport as a component of the SCI rehabilitation process in February, 1944 (Guttmann, 1976a). Guttmann (1976a) suggested that in addition to traditional physical therapy, sport could help rebuild SCI patient's vigor, vitality, and stamina. Guttmann (1976b) also suggested that sport could be successfully used to reduce patient's stress and indifference during rehabilitation and improve faith in oneself, pride, and self-respect as well as providing a vehicle for social reintroduction and inclusion with non-disabled individuals. Sport activities included were: punchball exercises, darts, rope-climbing, archery, badminton, table tennis, snooker, wheelchair polo, and eventually, wheelchair basketball. As a result of this multidisciplinary approach, life expectancy for individuals with a SCI was greatly increased. Eighty-four percent of Guttmann's first 3,000 patients found employment in a variety of occupations and professions after discharge from the hospital (Guttmann, 1976a).

While not all individuals with a SCI are interested in participating in sports, it has been shown that a large number who have taken part in sports during the rehabilitation process continue participation in sports activities after their discharge from the hospital (Guttmann, 1976a). Guttmann (1976b) suggested that motives for participation in sport activities by the disabled include

health and fitness, and the opportunity for social integration. This interest by individuals with a SCI inspired the development of sport activities for the disabled.

One of the first sports developed for individuals with a SCI was wheelchair basketball (Owen, 1982). Created in 1946, wheelchair basketball was first played in the Veterans Administration (VA) hospitals in Birmingham, California and New England. The programs began at the two VA hospitals virtually at the same time and consequently, both take credit for its creation. Wheelchair basketball gained popularity quickly among paralyzed veterans. By 1948, VA hospitals in Boston, Chicago, Memphis, Richmond (Virginia), and New York had included wheelchair basketball in their SCI rehabilitation programs (Owen, 1982; Schweikert, 1954). Teams with disabled non-veterans were first formed in 1949. The National Wheelchair Basketball Association (NWBA) was formed in 1949 under the leadership of Professor Timothy Nugent, director of rehabilitation at the University of Illinois (Owen, 1982).

The purpose of the NWBA is to contribute to the advancement and expansion of wheelchair basketball due to the many benefits the sport has provided to both players and other individuals with disabilities. In addition to being a competitive sport, wheelchair basketball provides a medium

for numerous other purposes (Owen, 1982). Wheelchair basketball has contributed to an increased societal awareness concerning various disabilities and helped remove the indifference felt by many towards disabled individuals. It also serves as an important component in the physical, psychological, and social rehabilitation of disabled individuals and strives to instill the fact to the players that they are, indeed, athletes.

Believing that individuals may choose to participate in an activity for various reasons, Maehr and Braskamp (1986) developed the Personal Investment Theory. In this theory, personal investment is viewed as synonymous with motivation. The authors proposed that the motives for participation change as individuals develop and are exposed to a variety of experiences in life. The success, failure, joy, and happiness associated with these past experiences influence future choices in an individuals life.

Based on Maehr and Braskamp's (1986) personal investment theory and Guttmann's (1976b) insights into motivational factors that influence participation in sport by individuals with a SCI, various studies have investigated the motivational factors of wheelchair basketball athletes (Brasile, 1988, 1989; Brasile & Hedrick, 1991). Results indicated that participants reported that sport offers an enjoyable leisure experience. Intrinsic motivation,

socialization, and fitness related factors were identified as most important to the subjects. However, there was a discrepancy among responses depending upon subjects' level of disability.

Research concerning participational attitudes of wheelchair athletes (Brasile 1988, 1989; Brasile & Hedrick, 1991) has primarily focused on individuals who have a paraplegia SCI and sports involvement in wheelchair basketball. In that there are 10,000 to 12,000 individuals who sustain a SCI annually and that a substantial percentage occur at the cervical 5-6 vertebra (Sherrill, 1986a), more information is needed on sport participation incentives of these individuals with a quadriplegia SCI.

Quad rugby, the quadriplegia equal to wheelchair basketball, is one example of a competitive sport opportunity for individuals with a cervical injury. The sport was created in 1979 in Canada by Jerry Terwin and Duncan Campbell, both quadriplegics (Goodin, 1983). With select components from basketball, soccer, and ice hockey, quad rugby was created for individuals with a quadriplegia SCI who were being excluded from disabled team-sport competition such as the fast paced sport of wheelchair basketball (Hooper, 1991; Pacoirek & Jones, 1989). The United States Quad Rugby Association (USQRA) was formed in 1988. Quad Rugby is played on a full-length basketball court by two opposing teams. The

object of the sport is for the the team playing offense to maneuver a volleyball across the defensive team's scoring line. The scoring line is distinguished by cones eight meters apart with a taped or painted line connecting them at each end of the court. To score a goal, players must cross the line, while in possession of the ball, with a minimum of two wheels of their wheelchair. So as to avoid penalties and ball turnovers to the opposing team, players must either pass the ball to a teammate or bounce it (as if dribbling in basketball) within a 10-second time limit as they move down court and/or attempt to score. There is no restriction to the number of pushes of the wheelchair a ball-handler may attempt during this time. No more than four players per team (each with a maximum of 12 players) are allowed on the court at any one time. Similar to wheelchair basketball, classification levels are assigned "point levels" to insure that the teams on the court are equitable at any given time (United States Quad Rugby Association, 1992). In an effort to provide the opportunity for quadriplegics with varying abilities to participate on an equal level, the USQRA has now adopted a classification system that incorporates muscle and trunk stability tests which are much more discriminate in the athletes functional level than the National Wheelchair Athletic Association (NWAA) classification system. However, the USQRA utilized the basic spinal cord injury medical

classification system of the NWAA of 1A, 1B, and 1C as a guideline (Yilla, Mikkelson, Willard, & Dimsdale, 1988). The possible quad rugby classifications listed from most to least severity of disability are: .5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5 (United States Quad Rugby Association, 1992).

Statement of the Problem

The purpose of this investigation was to study the participation motivation incentives influencing participation in sport activities by quadriplegic athletes with varying levels of disability.

Hypotheses

The following null hypotheses were made for this study:

1. Classification levels are not associated with motivational factors (fitness, ego, task, social integration, and social affective) of quadriplegic athletes.

2. Years of involvement in quad rugby is not associated with motivational factors (fitness, ego, task, social integration, and social affective) of quadriplegic athletes.

Definitions

Muscle Strength Testing

Muscle strength testing is measured using an ordinal scale for rating the strength of individual muscles or muscle groups using gravity and manual resistance as the method of measurement. The muscles are graded on the following six point scale:

0. Total lack of voluntary contraction.
1. "Faint," or trace voluntary contracture.
2. "Poor," or very weak movement through range of motion.
3. "Fair" movement and contracture through full range of motion.
4. "Good" contraction with full range of movement.
5. "Normal" contraction with full range of motion (United States Quad Rugby Association, 1992, p. 77).

Functional Testing For Trunk

Functional testing for trunk function is performed by individuals in their wheelchairs while wearing any support strapping that will be used during competition.

.5 Trunk Test (Must achieve one of the following):

a. Raise arm from the front and/or sides of the wheelchair to the lap but not overhead without using the other arm for balance or support.

.5 Trunk Test (continued)

b. Successful performance of one of the two 1.0 trunk tests.

These athletes demonstrate trunk function through either a sagittal or frontal plane.

1.0 Trunk Test (Must achieve both of the following):

a. Raise arm from floor in front of the wheelchair and overhead without using the other arm for balance or support.

b. Raise arms from the right and left sides of the wheelchair and overhead without using the other arm for balance or support.

These athletes will demonstrate trunk function through both a sagittal and frontal plane (United States Quad Rugby Association, 1992, p. 77).

NWAA Classification Levels

The NWAA recognizes the following classifications for athletic competition by individuals with cervical injuries:

Class 1A: all cervical lesions with complete or incomplete quadriplegia who have involvement of both hands, weakness of triceps (up to and including grade 3 on testing scale) and with severe weakness of the trunk and lower extremities interfering significantly with trunk balance and the ability to walk.

Class 1B: all cervical lesions with complete or incomplete quadriplegia who have involvement of upper extremities but less than 1A with preservation of normal or good triceps (4 or 5 on testing scale) and with a generalized weakness of the trunk and lower extremities interfering significantly with trunk balance and the ability to walk.

Class 1C: all cervical lesions with complete or incomplete quadriplegia who have involvement of upper extremities but less than 1A with preservation of normal or good triceps (4 or 5 on testing scale) and normal or good finger flexion and extension (grasp and release) but without intrinsic hand function and with a generalized weakness of the trunk and lower extremities interfering significantly with trunk balance and the ability to walk (National Wheelchair Athletic Association, 1988, p. 2).

Quad Rugby Wheelchair Classification Levels

The following is a list of Quad Rugby Classifications recognized by the USQRA:

Classification	Description
0.5	1A complete, no triceps, "True C4-5 Quad"
1.0	1A complete, 1-3 triceps
1.5	1A/1B arms/hands

1.5	1A arms/hands and .5 trunk
2.0	1A arms/hands and 1.0 trunk
2.0	1A/1B arms/hands and .5 trunk
2.0	1A/1C arms/hands
2.0	1B complete
2.5	1B/1C arms/hands
2.5	1A/II arms/hands
2.5	1A/1C arms/hands and .5 trunk
2.5	1B arms/hands and .5 trunk
3.0	1B/1C arms/hands and .5 trunk
3.0	1B arms/hands and 1.0 trunk
3.0	1A/II arms/hands and .5 trunk
3.0	1C complete
3.0	1A/ 1C arms/hands and 1.0 trunk
3.0	1B/II arms/hands
3.5	1B/1C arms/hands and 1.0 trunk
3.5	1C arms/hands and .5 trunk
3.5	1B/II arms/hands and .5 trunk
3.5	1A/II arms/hands and 1.0 trunk
3.5	1C/II arms/hands (United States Quad Rugby Association, 1992, p. 76).

Spinal cord injury: any one of the traumatic disruptions of the spinal cord, often associated with extensive musculoskeletal involvement. Common spinal cord injuries are spinal cord fractures and dislocations. Such trauma may

cause varying degrees of paraplegia and quadriplegia. Injuries to the spinal structures below the first thoracic vertebra may produce paraplegia. Injuries to the spine above the first thoracic vertebra may cause quadriplegia. Injuries that completely transect the spinal cord cause permanent loss of motor and sensory functions activated by neurons below the level of lesions involved (Glanze, 1988, p. 1104).

Assumptions

The following assumptions were made for this study:

1. individuals will respond to the questionnaire truthfully.

2. individuals will follow the investigator's instructions when answering the questionnaire.

3. individuals participating in this study are representative of a larger population.

Delimitations

This research was delimited to:

1. wheelchair athletes participating in the USQRA Quad Rugby Nationals during the the weekend of April 2-5, 1992, at San Jose State University.

Limitations

This research was limited by the following:

1. the instrument used is a self report questionnaire.

2. the sample size may not be representative of individuals with a quadriplegia SCI.

3. the possible application of results to other individuals with a disability.

4. the low number of athletes representing Quad Rugby at the USQRA Quad Rugby Nationals.

5. the results of this study should be viewed with caution due to the data collection procedures. Subjects completed the instrument following competition and the level of the respondents' motivation at that point in time may be a reflection of a win or loss, and standings in the tournament.

Significance of the Study

Due to legislative changes and removal of barriers, both environmental and social, and technological advances, individuals with a SCI today have increased opportunities to enjoy a variety of competitive and recreational activities. These include activities such as wheelchair tennis, wheelchair basketball, rugby, marathons, triathlons, weight lifting, swimming, table tennis, archery, football, track and field events, snow-skiing, water-skiing, scuba diving, kayaking, fishing, and bowling.

Research investigating the motivational incentives for participation in sport by the disabled to date are limited (Brasile & Hedrick, 1991; Sherrill, 1986b). Of the research addressing psychological factors influencing participation in

sport by individuals with a SCI (Brasile, 1988, 1989; Brasile & Hedrick, 1991; Brasile, Kleiber, & Harnisch, 1991; Hopper, 1986; Kennedy, 1980; Ruckert, 1980), results have varied and been inconclusive. In addition, research has primarily addressed the reasons for participation in sport by individuals with paraplegia, not quadriplegia, SCI.

Participation in sports can positively influence the physical, emotional, and social well-being for many individuals with a SCI (Guttmann 1976b). Further insight into the motivational participation incentives of disabled athletes could be instrumental to therapists, teachers, coaches, and other professionals in our field in an effort to attract new participants to sport and decrease drop-out from the sport activity.

CHAPTER TWO

REVIEW OF LITERATURE

The purpose of this study was to gain an understanding of the primary motivational factors that influence participation in sport by quadriplegic athletes. For the purpose of this review, the literature has been divided into two categories: (1) literature pertaining to the value of sport for individuals with disabilities, and (2) literature pertaining to the psychological and motivational incentives influencing disabled and non-disabled athletes' participation in sport.

Value of Sport

Individuals who are afflicted by a disease or sustain a severe injury resulting in a spinal cord injury (SCI) are faced with both physical and psychological adjustments. Activities of daily living, such as excretory functions, bathing, and dressing, may be arduous due to difficulties with balance, muscle control, and motor coordination. Psychological difficulties may include anxiety, a decreased self-concept, and lowered self-esteem (Guttmann, 1976b).

Guttmann (1976a) proposed that, in addition to traditional physical therapy, sport can be utilized in the rehabilitative process as a positive means of improving physical fitness. In discussing sport for the disabled, Guttmann indicated that sport activities offer a greater

benefit than structured exercise programs due to its recreational worth, which helps to rebuild a desire to play and the hope of re-experiencing happiness in life. Guttmann (1976b) stated "the aims of sport are to develop in the disabled activity of mind, self-confidence, self-discipline, competitive spirit, and comradery" (p. 12).

Stewart (1981) also suggested that sport can be an integral part of the rehabilitation process and help in developing positive lifestyles for the disabled after leaving the hospital. Improved vigor, endurance, and self-concept from sport participation often improves an individual's attitude toward life and activities available to them. As opportunities to participate in a variety of activities increases, the possibilities for social interaction improves. In addition, through their physical effort and success in sport, the disabled individual can realize an increase in pride.

Kennedy (1980), studied the attitudes of 84 disabled athletes competing in a regional event of the NWAA. His work emphasized that disabled individuals should have the opportunity to participate in sport activities due to the fact that it allows them to experience the feeling of success or failure, both of which are important in dealing with true life situations. Kennedy acknowledged that wheelchair sports is a positive avenue for the disabled to express their

competitiveness. Kennedy's research indicated that the facilitation of wheelchair sports has also decreased society's apathy toward the disabled.

Vallient, Bezzubyk, Daley, and Asu (1985) studied the psychological impact of sport on disabled athletes. Subjects in this study consisted of physically disabled athletes (n=139) and physically disabled non-athletes (n=22). Disabilities of subjects included spinal cord injuries, amputees, blind, and cerebral palsied. All subjects completed the Coopersmith Self-Esteem Inventory, Rotter's Internal-External Locus of Control Scale, and a social history questionnaire. Results of this study reported "disabled athletes had higher self-esteem, were better educated, more satisfied with life, and happier than the disabled non-athletes" (p. 928).

Patrick (1986) studied the effects of wheelchair sports competition on the self-concept and acceptance of disability of disabled novice athletes in comparison to experienced disabled athletes and disabled non-athletes. The subjects of this study were disabled novice athletes (n=10), experienced disabled athletes (n=12), and disabled non-athletes (n=12). The novice and experienced athletes were competing in the Dixie Wheelchair Games, a regional National Wheelchair Athletic Association (NWAA) event in May, 1982. The disabled non-athletes had recently been discharged from two

rehabilitation centers and had rejected involvement in wheelchair sport opportunities during rehabilitation. Subjects completed the Acceptance of Disability Scale and the Tennessee Self Concept Scale prior to the competition with a posttest following five months later. Results of this study indicated that novice participation in wheelchair sports had a strong positive influence upon a disabled individual's self-concept and his/her acceptance of disability as measured by the instruments. The author attributed much of this to interaction and praise from the experienced disabled athletes. The non-athletes demonstrated no significant progress in improving self-concept during the five months. This study suggested that participation in sport and recreational activities by recently disabled individuals may improve their self-concept and acceptance of disability.

Montelione and Davis (1986) indicated that sport is of great value to the disabled. Sport acts as a medium for socialization in all cultures. There are many benefits available to those who participate in sport; however, two are viewed by the authors as most important. First, partisanship and cooperation in sport teaches teamwork, a proficiency necessary for leading a happy and successful life. Secondly, and similar to Kennedy's (1980) results, success and accomplishment in sports by disabled individuals has assisted society in focusing on the competitors' ability and not their

disability. If sport participation can help change society's perception of the disabled, it is a victory, in and of itself.

Psychological and Motivational Factors

One of the earlier theories proposed in an attempt to understand motivation for participation in sport was promoted by Alderman (1976). Alderman described incentive motivation as being based on the idea that individuals are continually presented with choices, decisions, and opportunities on which they react. An individuals action is based on the type of incentives that appeal to them at that time and the importance they place upon them. The appeal and importance of the activity is largely based on prior experiences and expected outcomes. The incentive motivation model proposed multiple incentive systems, all of which are available to choose from at any time. According to the author, they are sensory, curiosity, achievement, affiliation, aggression, independence, and power incentives.

Alderman and Wood (1976) studied the participation motivation of 425 male youth ice hockey players ranging in age from 11 to 14 years. After a review of the seven incentive systems previously proposed, minor modifications were made so as to make it applicable to sport. The seven modified incentive systems identified in this study were: independence (choosing to do something independently and

without judgement by others), power (the ability to affect how others perceive you), affiliation (occasions for social integration opportunities), arousal (occasions where exhilaration, tension, and newness could be experienced), esteem (extrinsic rewards), excellence (intrinsic rewards) and, aggression (occasions to control, threaten, or hurt others). The instrument consisted of 84 items with 12 items loading to each of seven incentive systems. Subjects were asked to rate each item as it applied to them individually as an athlete and how they felt about themselves from four possible choices: always, often, seldom, or never. Descriptive results of this study indicated that affiliation was the most important motivational incentive to the subjects followed by excellence, arousal, and esteem.

Gill, Gross, and Huddleston (1983) investigated the participation motivation incentives of able-bodied youth attending a one-week summer sports school. Sport activities offered included basketball, wrestling, football, golf, baseball, tennis, track, soccer, gymnastics, volleyball, and cheerleading. Subjects of this study were males (n=720) and females (n=418) ranging in age from 8 to 18 years of age. On the first day of the session, the subjects were asked to complete a 30 item questionnaire designed by the authors to assess incentives for sport participation by rating statements either 1 = very important, 2 = somewhat important,

or 3 = not at all important. According to the authors, the items factored into eight participation motivation categories. They were: achievement/status, team, fitness, energy release, others, skill, friends, and fun. Descriptive results indicated that the desire to improve skills was rated as most important by both males and females, followed by fun, the desire to learn new skills, challenge, and the desire to be physically fit. A comparison by gender indicated that females rated fun as next most important followed by the desire to learn new skills, competition, and being on a team. Males, however, rated challenge as second most important followed by, competition, fun, and learning new skills. Items rated as least important by the subjects were energy release, encouragement to play by parents or close friends, and travel. The authors concluded that the emphasis on skill development and improvement shown in the subject's responses may have been related to the location of the data collection. Therefore, the authors suggested that fun may be one of the most important reasons for youth participation in sport.

Gould, Feltz, & Weiss (1985) researched motives for participating in competitive youth swimming using the incentive motivation paradigm proposed by Alderman (1976). Subjects were male and female swimmers (N=365) ranging in age from 8 to 19 years of age. The instrument used in this study was a modified version of Gill, Gross, &

Huddleston's Participation Motivation Questionnaire designed to assess participation motivation in youth sports. The questionnaire contained 30 items in which subjects were asked to respond: 1 = not important, 2 = somewhat important, or 3 = very important. According to the authors, the items loaded into seven factors which were identified as: achievement-status, team atmosphere, excitement-challenge, fitness, energy-release, skill development, and friendship. Results from this study indicated that fun, fitness, team atmosphere, skill development, and excitement-challenge were rated as the most important reasons overall for participation by the subjects which substantiates the results of Gill et al. (1983). Differences in participation motivation incentives by gender, age, and experience were noted. Females in this study rated friendship and fun as greater incentives for participation than the male subjects. A comparison by age revealed that the younger swimmers rated external motives such as achievement/status and parents or friends want me to participate as being more important than the older swimmers. Older swimmers rated internal motives such as improving fitness and skill development as important reasons for participation.

Wankel and Kreisel (1985) acknowledged that previous research (Gill et al., 1983; Gould et al., 1985) has determined that fun is often rated as a primary incentive for

participation in sports. The purpose of this investigation was to determine what the underlying factors are that relate to enjoyment in youth sports. Subjects were 822 youths participating in soccer (n=330), baseball (n=176), and hockey (n=343) and ranged in age from 7 to 14 years of age. The instrument used in the investigation was a 10-item Thurstonian paired comparison inventory consisting of 45 pairs. Results indicated no significant difference in responses between sport involvement and subjects' age in relationship to the enjoyment factors. Intrinsic incentives such as excitement of the sport, personal accomplishment, and testing abilities against others were rated as most important reasons for participation. Extrinsic motives such as receiving awards and winning the game were rated as least important by the sample group.

Brodkin and Weiss (1990) investigated developmental differences in motivation in competitive swimming throughout the lifespan. The authors acknowledged the importance of previous theoretical research but believed that the cognitive-developmental level of individuals is an influencing factor in motivational reasons for participation in sport. Subjects (N=100) were able-bodied males and females and ranged in age from 6 to 74 years in age. For purposes of the study, the subjects were categorized into six age groups. They are as follows: younger children (6-9

yrs), older children (10-14 yrs), high school/college age (15-22 yrs), younger adult (23-29 yrs), middle adult (40-59 yrs), and older adult (60-74 yrs). The instrument utilized in this study was a modified version of the Participation Motivation Questionnaire. Motivational incentives identified in this instrument were: characteristics of competitive swimming, health/fitness, status, affiliation, energy release, significant others, and fun. Of the seven incentives, four were seen as significant motivational incentives to the respondents. Results from this study indicated that: social status was rated as most important by older children and high school/college age swimmers, fun was most important to the younger children and older adults, health and fitness were rated most important by young and middle adults, and significant others was rated as most important to young children than any other age group. Based on this study's results, it can be inferred that motivational incentives that influence participation in sport varies depending on age.

Mathes and Battista (1985) researched college men's and women's motives for participation in physical activity. The purpose of this study was to determine if participation motives varied by gender and skill level. Subjects of this study were male (n=50) and female (n=50) college athletes and male (n=50) and female (n=50) college non-athletes. Subjects

completed a modified version of Kenyon's Attitude Toward Physical Activity Questionnaire which, according to the authors, is said to measure physical activity for the: social experience, health and fitness, thrill and risk, beauty in movement, release of tension, training, pursuit of victory, demonstration of ability, and experience of competition. These items were said to have factored into 3 categories: competition, health and fitness, and social experience. The results of this study indicated that health and fitness were the most important motivational incentives for sport participation by all subjects. A univariate analysis revealed that females rated competition significantly lower and social experience significantly higher than males. Analysis by skill level demonstrated that athletes rated competition significantly higher as a motivational incentive than the non-athletes.

Raugh and Wall (1987) investigated motivation incentives that influence participation in sports by male and female (n=59) college athletes, students in physical education activity classes (n=101), and participants from intramural programs (n=29). The instrument used in this study was a 72 item, five point Likert-type scale. Results indicated that the three items rated as most important motivational incentives influencing participation in order of frequency were: self-improvement, having fun and enjoying the

activity, and improvement of total fitness. A factor analysis of the items determined that additional refinements of the questionnaire would be necessary for future use in understanding participation motivation in sports.

Robinson and Carron (1982) investigated the motivational and situational (environmental) incentives related to individuals adherence to competitive sport participation versus dropping out. Subjects of this study were 98 high school football players categorized as dropouts (n=26), sport starters (n=33), and sport survivors (n=39). The personal/motivational incentives used for analysis were competitive trait anxiety, self-esteem, achievement motivation, self-motivation, casual attributions made to ability, effort, difficulty of the sport experience and luck, and general attitudes toward competitive athletics. The situational/environmental incentives used were sportsmanship and communication, socialization incentives (parental and peer group support), coaching/leadership factors, and cohesion. Subjects completed the Sport Competition Anxiety Test, the Self-Motivation Inventory, a modified version of Rosenburg's Self-Esteem Inventory, selected components of Gould and Martens' Youth Opinion Questionnaire, the Leadership Scale for Sport, and a modified version of the Sport Cohesiveness Questionnaire. Results indicated that group cohesiveness and a feeling of belonging to the team,

encouragement to continue in sport received from fathers and teachers, a high perception of competence in sport, and an ability to recognize and internalize personal success were key components to adherence to competitive sport participation by subjects of this study.

Goodling and Asken (1987) suggested that motivational factors that influence participation in sports by disabled individuals may be different than those of the able bodied due in part to physical and emotional adjustments as a result of their disability. Sport activities can be a vehicle for gaining acceptance by others, in addition to improving the disabled individual's self-importance.

Ruckert (cited in Sherrill, 1986b) studied the key motivational factors for sport participation by physically challenged athletes participating in the 1980 International Games for the Disabled in the Netherlands. Subjects, which represented 18 countries, were SCI athletes and amputee athletes. The subjects were asked to respond to the question "Who stimulated you to become involved in sport?" The responses were: themselves (29%), disabled friends (27%), able-bodied friends (27%), family (9%), and physicians (8%).

Kennedy (1980) studied the relationship of family, school friends, and community recreational agencies as socialization factors to the sport participation of spinal cord injured and amputee wheelchair athletes. Results

indicated that peers/friends were the most influential factor, followed by community, school and family. Other motives influencing participation in wheelchair sports identified in this study were: participation in the activity prior to the onset of disability, opportunities to continue sport participation following onset of injury, local sport groups, and the individual's level of disability.

Hopper (1982) also investigated the sport role socialization of wheelchair athletes. Subjects of this study were 87 wheelchair athletes ranging in age from 16 to 60 years. This investigation replicated Kennedy's (1980) earlier study in addition to researching additional variables related to sport participation by the disabled including athletic aspirations and length of involvement in their sport. In addition to duplicating Kennedy's results in relation to motivational influencing factors, the author reported that younger athletes and those with a more severe disability had higher athletic aspirations.

Cooper, Sherrill, and Marshall (1986) investigated cerebral palsied (CP) athlete's attitudes toward physical activity. The subjects of this study were elite CP athletes (N=165) competing in the Fourth National Games of the National Association of Sports for Cerebral Palsy (NASCP) in Fort Worth, Texas. The instrument used was Simon and Smoll's Attitude Toward Physical Activity Scale. Results of this

study indicated that both male and female CP athletes had a positive attitude toward physical activity. This fact could have safely been assumed due to the fact that the subjects were elite CP athletes. However, Cooper et al. state: "concerning attitude subdomains, cerebral palsied athletes are significantly more positive about physical activity as social experience, health/fitness, beauty, and tension release than as thrill and training" (p. 20).

Believing that individuals may choose to participate in an activity for various reasons, Maehr and Braskamp (1986) proposed the Personal Investment Theory. In this theory, personal investment is viewed as synonymous with motivation. The authors suggest that the motives for participation change as individuals develop and are exposed to a variety of experiences in life. The success, failure, joy, or happiness associated with these experiences influence the choices people make in life. Rather than considering an individual as motivated or unmotivated, personal investment suggests the individual is attracted or unattracted to a task. This is determined by how meaningful the situation is to the individual, and is often influenced by previous experiences. Maehr and Braskamp indicate that the meaning is comprised of three areas. They are:

> (1) certain perceived options or action possibilities available to the person in the situation; (2) certain

> views of oneself in relation to the situation, including one's view of oneself as being able to perform competently; and (3) reasons for or personal goals in performing the task (p. 217).

Brasile (1988) studied psychological incentives influencing participation in wheelchair basketball based on Maehr and Braskamp's (1986) Personal Investment Theory. Subjects were male and female disabled athletes competing in the 1986 National Wheelchair Basketball Tournament and the National Women's Wheelchair Basketball Tournament in Chicago, Illinois. The top five responses (multiple responses were accepted) by subjects to an open ended question asking "what was liked best about participating in wheelchair basketball" by frequency and percentage were love of competition (n=30, 28%), socialization (n=18, 17%), physical exercise (n=12, 11%), travel (n=9, 8%), and teamwork (n=8, 7%). However, responses to an 18 item Likert-type questionnaire indicated fitness and health as the primary motivational incentive followed by intrinsic incentives, and socialization incentives. Examination of responses based on classification levels indicated that intrinsic motives were rated more important for participation by athletes with a more severe disability level (Class 1) than the other athletes.

In 1991, Brasile and Hedrick compared participation incentives of adult and youth wheelchair basketball players.

Subjects of the study were adult males (n=52), adult females (n=36), youth males (n=83) and youth females (n=20) with a mean age range of 15.7 to 31.1 years. The instrument used in the investigation was the Participation Reasons Scale (PRS) developed by Brasile (1989) and based upon Maehr and Braskamp's (1986) personal investment theory. The PRS is a 26-item Likert-type instrument on which subjects were asked to rate the importance of motivational incentives for participating in wheelchair basketball competition on a 5-point scale ranging from 1 (not important to me) to 5 (very important to me). The 26 items factor into five participational categories identified as: fitness incentives (items related to improving overall fitness, weight control, and exercise), ego incentives (items associated with personal performance and accomplishment), task incentives (items associated with intrinsic motivation), social integration incentives (items associated with friendship, companionship, and interpersonal relationships), and social affective incentives (items associated with personal feelings or emotions as they relate to sport participation). The PRS was administered to adult male and female participants at the National Wheelchair Basketball Tournament, April 1-4, 1987, in Dallas Texas, to youth participants at the Junior Wheelchair Basketball Tournament at Courage Center in November, 1987, and youth participants at the Junior National

Wheelchair Basketball Tournament in April of 1988 in Chicago, Illinois. The dependent variables were the five incentive factors. The independent variables were the age group of the subjects. Results indicated that the items: "...I enjoy the team interaction of the sport," "...it offers me an opportunity to improve my ability at the activity," "...of the excitement of the activity," and "...it gives me a chance to test myself against my own standards" were ranked as the top four reasons for participation by both adults and youth subjects. These items all factor into the task incentive category (those associated with intrinsic motivation). It, therefore, could be interpreted that there was a large similarity in reasons for participation between the two age groups. However, youth respondents rated ego incentives and social-integrative motives significantly higher than adult respondents.

Brasile, Kleiber, and Harnisch (1991) investigated participation incentives among athletes with and without disabilities. Subjects were male and female athletes participating in basketball and track and field competitions. Of these, 158 subjects were wheelchair athletes and 116 were non-disabled athletes. The instrument used in this study was Brasile's (1989) Participation Reasons Scale (PRS). Results indicated that task incentives (those that are intrinsically motivated) were the primary motivational incentive for

participation by both subject groups. Further analysis indicated that social integration incentives which include items such as being with friends, making new acquaintances and traveling were more important to the disabled athletes than the non-disabled athletes.

Fung (1992) investigated the motives for participation in competitive sports of elite male and female wheelchair athletes. Subjects of the investigation were American (n=15), British (n=15) and Japanese (n=15) paraplegic and quadriplegic track athletes participating in the 1988 Paralympics in Seoul, Korea. Subjects were limited to those with 2 or more years of competitive sport participation at the international level and classified as Class 2, 3, 4, or 5 by the International Stoke Mandeville Games Federation and ranged in age from 20 to 30 years. The instrument was the Participation Motivation Questionnaire designed to assess participation motivation in youth sports. Results indicated that American and British males and females ranked the fitness incentive as most important. The Japanese males ranked skill development as most important, whereas, the Japanese females ranked skill development and friendship equally as most important. Achievement and status and energy release incentives were ranked as least important by American, British and Japanese males and females. Japanese males ranked friendship and team atmosphere incentives as

least important. Following fitness, American male and female athletes equally ranked the following incentives in order of importance: excitement and challenge, team atmosphere, skill development, and friendship. Cultural background may, therefore, play a role in motivational participation incentives. Because it was said that the instrument was designed to assess participation motivation in youth sports and the subjects of this investigation ranged in age from 20 to 30 years, the results from this investigation should be interpreted with caution.

Summary

It can be stated that participation in sport by disabled individuals is of significant value. Sport participation can restore and eventually aid in maintaining a disabled person's strength, coordination, speed, and endurance. For the newly disabled, sport can help restore a passion for playful activity and the desire to experience joy and pleasure in life. The aims of sport are to develop activity of mind, self-confidence, self-dignity, self-discipline, competitive spirit, and comradery (Guttmann, 1976). Participation in sport activities can improve individuals self-concept and acceptance of disability (Patrick, 1986). Sport participation increases opportunities for socialization and a chance to gain recognition for effort and achievement, thereby increasing the individuals self-esteem (Montelione &

Davis, 1986; Stewart, 1981). In addition to increased self-esteem, disabled athletes were better educated, more satisfied with life, and happier than disabled non-athletes (Vallient et al., 1985). Furthermore, sport can be viewed as a valuable avenue for the disabled to express their competitiveness (Kennedy, 1980).

Researchers have investigated many of the psychological and motivational aspects of participation in sports by able bodied youth (Alderman & Wood, 1976; Gill et al., 1983; Gould et al., 1985; Wankel & Kreisel, 1985). Results have indicated that socialization with peers, improvement of skills, having fun, excitement of the sport, personal accomplishment, and improving fitness were viewed as primary participational incentives, depending on the demographics of the subjects, the sport, and the instrument used for data collection.

Motivation incentives that influence sport participation have been shown to vary with age (Brodkin & Weiss, 1990). Research investigating sport participation motivation indicated that health and fitness, self-improvement, and having fun were significant motivational incentives for college-aged individuals (Mathes & Battista, 1985; Raugh & Wall, 1987).

Motivation factors that influence participation in sport by the disabled may be different than those of the able-

bodied due to physical and emotional adjustments as a result of their disability (Goodling & Asken, 1987). Sport activities can be a vehicle for gaining acceptance by others, in addition to improving the disabled individual's self-worth.

Researchers have investigated the motivational incentives for sport participation by disabled individuals (Brasile, 1989; Brasile & Hedrick, 1991; Brasile et al., 1991; Fung, 1992). Results indicated that health and fitness, intrinsic motivation, and social integration incentives were important factors influencing participation in sport by wheelchair athletes. However, the level of importance of these incentives varied by disability level (Brasile, 1988).

Due to conflicting results, the use of a variety of instruments used in previous investigations, and a lack of research relating to the more severely disabled, further research is necessary to gain a better understanding of the primary motivational incentives that influence participation in sports activities by individuals who have a quadriplegia SCI. This study was intended to give greater insight into the primary motivational participation incentives of elite quadriplegic rugby athletes.

CHAPTER THREE

METHODOLOGY

The purpose of the study was to gain an understanding of the primary motivational factors that influence participation in sport activities by quadriplegic athletes. The intent of this chapter is to describe the procedures which were used to conduct the study. A description of the subjects participating in this study, along with a description of the instrument used, the study variables, the survey procedures, and a discussion of techniques to be used for analysis of data are presented.

Subjects

Subjects of this study (N=74) were participants in the USQRA Quad Rugby Nationals, April 2-5, 1992 at San Jose State University, in San Jose, California. The subjects consisted of adult males (n=68) and adult females (n=6) ranging in age from 19 to 50 years (M=30.22, SD=6.63). All Quad Rugby classifications were represented. Demographic characteristics from the Respondent Information Form (RIF) describing the subjects' age, gender, years since onset of disability, classification level, and years of participation in Quad Rugby are presented in Table 1. The years since onset of disability of the sample ranged from 1 to 46 years (M=11.72, SD=9.58). In regards to subject's Quad Rugby classification level, 14.9% (n=11) were classified as 0.5, 16.2% (n=12) were classed 1.0, 4.1% (n=3) were classed 1.5,

Table 1

Demographic Characteristics of Respondents (N = 74)

Characteristics	Mean	SD	Range
Age	30.22	6.63	19-50
Years Since Onset of Disability	11.72	9.58	1-46
Hours Per Week Spent on Activity	7.36	3.79	0-20

Characteristics	N = 74	%
Gender		
Male	68	91.9
Female	6	8.1
Classification		
0.5	11	14.9
1.0	12	16.2
1.5	3	4.1
2.0	21	28.4
2.5	13	17.6
3.0	7	9.4
3.5	7	9.4
Years of Participation in Quad Rugby		
0-6 months	9	12.2
6 months-1 year	6	8.1
1-3 years	27	36.5
3-5 years	21	28.4
5-7 years	3	4.0
7-9 years	0	0.0
over 9 years	8	10.8

28.4% (n=21) were classed 2.0, 17.6% (n=13) were classed 2.5, 9.4% (n=7) were classed 3.0, and 9.4% (n=7) were classed 3.5. The only classification that appears to have been underrepresented was 1.5 (n=3).

With respect to years of participation in the sport, 20% of the subjects (n=15) indicated 1 year or less, 37% (n=27) between 1 and 3 years, 28% (n=21) between 3 and 5 years, 4% (n=3) between 5 and 7 years, and 11% (n=8) 9 or more years. The only group that appears to have been underrepresented (n=3) are those reporting five to seven years of participation. With respect to hours per week spent on the activity, subjects responses ranged from 0 to 20 hours (M=7.36, SD= 3.79).

The sampling frame for this investigation was chosen for the following reasons: (1) the participants come from a variety of geographical locations and, therefore, are considered representative of a larger population, and (2) the participants are regarded as possessing a high level of motivation and commitment, qualities necessary for wheelchair athletes to train, practice, and travel to compete in athletic events.

Description of the Instrument

The two instruments used in this study were designed by Brasile (1989). Minimal modifications of the instruments were made so as to make it applicable to the sport of quad rugby. The Participation Reasons Scale (PRS) used in this study is a self-reporting, 26-item Likert-type rating scale instrument. The Respondent Information Form (RIF) was designed to provide a greater understanding of the participants demographic and sport-related background such as age, quad rugby classification level, and years of participation in the sport.

Development and Validation of the Instrument

The PRS is a paper and pencil instrument on which subjects are asked to rate the relevant importance of 26 items on a 5 point scale ranging from 1 (not important to me) to 5 (very important to me). The items load onto five factors and are identified as: fitness (5 items), ego (6 items), task (6 items), social integration (4 items), and social affective incentives (5 items) (Brasile, 1989).

The items in the PRS inventory were originally developed from publications pertaining to sport for the disabled and motivation incentives related to sport participation. In addition, input was solicited from experienced researchers, specialists in the field of wheelchair athletics, and disabled athletes. Two pilot investigations were

administered with further refinement of the instrument following each study (Brasile, 1989).

The internal consistency of the PRS was measured using Cronbach's alpha. Brasile (1989) determined the reliability coefficients for the incentive factors to be: fitness 0.79, ego 0.82, task 0.81, social integration 0.68, and social affective 0.76.

Previous research by Brasile (1989) indicated the possibility that "individual characteristics such as age, gender, hours of involvement in sports activities, years of sport participation, and perceived confidence may have an effect upon the reasons for participation in an activity" (p.74). The RIF was designed to further understand other possible motivational influences for participation.

Variables of the Study

For the purposes of this investigation, the dependent variables were identified as fitness, ego, task, social integration, and social affective incentives for sport participation. The independent variables were subjects classification level and years of experience in the sport.

Data Collection Procedures

The instrument was administered at a pre-arranged location at the site of the 1992 United States Quad Rugby Nationals. Coaches of the competing teams were approached individually, prior to competition, and explained the purpose of the investigation. A specific time for athletes

interested in participating in the study to come to the pre-arranged location to complete the instrument was then coordinated. The location was a large, quiet, wheelchair accessible conference room, free of distractions from the ongoing event. Although there were often more than one subject in the room during data collection, subjects were asked to complete the questionnaire individually. Assistance in completing the questionnaire was offered by the researcher to any subject desiring it due to their disability or injury during competition. The subjects were presented a packet containing the following:

1. a cover letter outlining the importance of completing the questionnaire honestly emphasizing that the subject was participating in a master's thesis study;

2. information clearly informing the subjects of their rights;

3. a statement insuring subjects' anonymity;

4. instructions regarding the completion of the questionnaire;

5. the Respondent Information Form;

6. the PRS questionnaire;

7. a statement thanking the subjects for their participation;

8. a statement informing the subjects that the results of the study would be available upon completion of the thesis and upon request.

Research Hypotheses

The following null hypotheses were made for this study:

1. Classification levels are not associated with motivational factors (fitness, ego, task, social integration, and social affective) of quadriplegic athletes.

2. Years of involvement in quad rugby is not associated with motivational factors (fitness, ego, task, social integration, and social affective) of quadriplegic athletes.

Statistical Procedures

For the purpose of statistical analysis, descriptive statistics including means, standard deviations, and frequency distributions of subject responses to the PRS and RIF items were calculated. In addition, independent samples chi-square tests were conducted to determine if a statistically significant association existed between classification levels and years of involvement with the motivational factors for sport participation of the quadriplegic athletes.

CHAPTER FOUR

RESULTS

The purpose of this study was to gain an understanding of the primary motivational factors that influence participation in sport activities by quadriplegic athletes. In this chapter, a discussion of the sample characteristics is presented followed by a discussion of the test of hypotheses.

Sample Characteristics

Subjects of this study (N=74) were participants in the USQRA Quad Rugby Nationals, April 2-5, 1992, at San Jose State University, in San Jose, California. The subjects consisted of adult males (n=68) and adult females (n=6) ranging in age from 19 to 50 years (M=30.22, SD=6.63) and all Quad Rugby classifications were represented. The subject's years since onset of disability ranged from 1 to 46 years (M=11.72, SD=9.58) and the majority of respondents (64%) reported participating in Quad Rugby from 1 to 5 years.

Test of Hypotheses

Subjects were asked to respond to a 26-item Participation Reasons Scale (PRS), developed by Brasile (1989), to investigate the select motivation factors that influence their sports involvement in Quad Rugby. The instrument allowed the sample to rate (5 point, Likert-type scale, ranging from not important to very important) the

perceived significance of each item. Items had been loaded into five factors: fitness, ego, task, social integration, and social affective.

To test the hypotheses that the classification level and years of participation are not associated with motivational factors (fitness, ego, task, social integration, and social affective) of quadriplegic athletes, independent samples chi-square analyses were performed using SPSS/PC+ (Norusis, 1991). Due to the amount of factors on the PRS and the low number of subjects in this study, the chi-square assumptions were not met. The results of the cross-tabulation data analyses are used to discuss the findings.

Table 2 outlines the percentage of each classification group by their rating of motivation factor. Not one factor was identified by the various classifications as "not important" to their reasons for sport participation. The task incentive factor was rated as "important" or "very important" by the majority of subjects in all Quad Rugby classifications (90.9% of .5, 83.3% of 1.0, 100% of 1.5, 90.5% of 2.0, 84.6% of 2.5, 57.2% of 3.0, and 100% of 3.5).

The social affective incentive factor was rated as "important" or "very important" by the majority of subjects comprising the following classes: .5 (72.8%), 1.0 (66.6%), 1.5 (100%), 2.5 (61.6%), and 3.0 (85.7%). Only 42.8% and 42.9% of class 2.0 and 3.5, respectively, viewed this factor

Table 2

Percentage of Each Classification by Likert Rating Scale per Factor

		Likert Rating Scale				
		Not Important	A Little Important	Somewhat Important	Important	Very Important
Factor: Fitness						
Class	N=74		Percentage[1]			
0.5	11	-	-	36.4	45.4	18.2
1.0	12	-	8.3	41.7	25.0	25.0
1.5	3	-	-	100.0	-	-
2.0	21	-	4.8	23.8	52.4	19.0
2.5	13	-	-	38.5	53.8	7.7
3.0	7	-	-	28.6	42.9	28.6
3.5	7	-	14.3	28.6	28.6	28.6
Factor: Ego						
Class	N=74		Percentage			
0.5	11	-	-	36.4	45.5	18.2
1.0	12	-	8.3	41.7	50.0	-
1.5	3	-	66.7	33.3	-	-
2.0	21	-	9.5	42.9	42.9	4.8
2.5	13	-	-	53.8	30.8	15.4
3.0	7	-	14.3	42.9	42.9	-
3.5	7	-	-	42.9	28.6	28.6

(table continues)

[1]Note. The total percentage does not reflect 100.0% due to rounding error.

Table 2 (continued)

		Likert Rating Scale				
		Not Important	A Little Important	Somewhat Important	Important	Very Important
Factor: Task						
Class	N=74		Percentage			
0.5	11	-	-	9.1	36.4	54.5
1.0	12	-	-	16.7	50.0	33.3
1.5	3	-	-	-	66.7	33.3
2.0	21	-	-	9.5	61.9	28.6
2.5	13	-	-	15.4	53.8	30.8
3.0	7	-	-	42.9	28.6	28.6
3.5	7	-	-	-	57.1	42.9
Factor: Social Integration						
Class	N=74		Percentage			
0.5	11	-	9.1	27.3	63.6	-
1.0	12	-	100.0	-	-	-
1.5	3	-	-	66.7	33.3	-
2.0	21	-	33.3	42.9	14.3	9.5
2.5	13	-	15.4	30.8	46.2	7.7
3.0	7	-	14.3	28.6	42.9	14.3
3.5	7	-	14.3	42.9	42.9	-
Factor: Social Affective						
Class	N=74		Percentage			
0.5	11	-	-	27.3	36.4	36.4
1.0	12	-	-	33.3	58.3	8.3
1.5	3	-	-	-	66.7	33.3
2.0	21	-	9.5	47.6	23.8	19.0
2.5	13	-	-	38.5	38.5	23.1
3.0	7	-	-	14.3	71.4	14.3
3.5	7	-	14.3	42.9	28.6	14.3

as "important" to "very important" for their reason for participation in Quad Rugby.

The fitness incentive factor was perceived as "important" to "very important" by subjects in the following classifications: .5 (63.6%), 2.0 (71.4%), 2.5 (61.5%), 3.0 (71.5%), and 3.5 (57.2%). Only 50% of class 1.0 (n=12) rated this incentive factor as "important" or "very important". One hundred percent of class 1.5 (n=3) rated this incentive factor as "somewhat important" for their sport participation motivational reason.

Subjects in the following classes rated the ego incentive factor as "somewhat important" to "important": .5 (81.9%), 1.0 (91.7%), 2.0 (85.8%), 2.5 (84.6%), 3.0 (85.8%), and 3.5 (71.5%). Sixty-six percent of class 1.5 (n=3) rated this incentive factor as "a little important" for their motivational reason for participation in Quad Rugby.

The social integration incentive factor was rated by subjects in the following classes as "somewhat important" or "important": .5 (90.9%), 1.5 (100%), 2.0 (57.2%), 2.5 (77%), 3.0 (71.5%), and 3.5 (85.8%). One hundred percent of class 1.0 (n=12) rated this incentive factor as "a little important" for their motivation to participate in Quad Rugby.

A cross-tabulation of years of participation in Quad Rugby and the motivational incentive factors for sport participation was also conducted for this study.

Table 3 outlines the percentage of the subjects' years of participation (YOP) by their rating of motivation factor. The task incentive factor was rated as important or very important by the majority of all subjects when categorized by years of participation (100% of 0-.5 YOP, 100% of.5-1 YOP, 74% of 1-3 YOP, 95.2% of 3-5 YOP, 66.7% of 5-7 YOP, and 87.5% of 9 years plus YOP).

Subjects included in the following YOP categories rated the fitness incentive factor as "somewhat important" or "important": .5 to 1 (100%), 1 to 3 (70.3%), 3 to 5 (76.2%), 5 to 7 (66.6%), and 9 years plus (87.5%). Seventy-seven percent of subjects participating 6 months or less (n=9) rated this incentive factor as "important" or "very important" for their sport participation motivational reason.

The social affective incentive factor was rated as "somewhat important" or "important" by subjects in the following YOP categories: .5 to 1 (66.7%), 3 to 5 (80.9%), 5 to 7 (100%), and 9 plus years (87.5%). Eighty-nine and seventy-four percent of subjects participating 6 months or less and 1 to 3 years, respectively, rated this incentive factor as "important" to "very important" for their sport participation motivational reason.

The majority of all subjects, when categorized by years of participation, rated the ego incentive factor as "somewhat important" or "important." The categories and percentages

Table 3

Percentage of Years Of Participation (YOP) by Likert Rating Scale per Factor

		Likert Rating Scale				
		Not Important	A Little Important	Somewhat Important	Important	Very Important
Factor: Fitness						
YOP	N=74		Percentage[1]			
0 -.5	9	-	-	22.2	55.6	22.2
.5 - 1	6	-	-	33.3	66.7	-
1 - 3	27	-	7.4	33.3	37.0	22.2
3 - 5	21	-	4.8	23.8	52.4	19.0
5 - 7	3	-	-	33.3	33.3	33.3
7 - 9	-	-	-	-	-	-
9 +	8	-	-	50.0	37.5	12.5
Factor: Ego						
YOP	N=74		Percentage			
0 -.5	9	-	-	33.3	55.6	11.1
.5 - 1	6	-	16.7	50.0	33.3	-
1 - 3	27	-	3.7	48.1	33.3	14.8
3 - 5	21	-	-	52.4	38.1	9.5
5 - 7	3	-	33.3	-	66.7	-
7 - 9	-	-	-	-	-	-
9 +	8	-	12.5	37.5	50.0	-

(table continues)

[1]Note. The total percentage does not reflect 100.0% due to rounding errors

Table 3 (Continued)

	Likert Rating Scale				
	Not Important	A Little Important	Somewhat Important	Important	Very Important
Factor: Task					
YOP	N=74		Percentage		
0 -.5	9	-	-	33.3	66.7
.5 - 1	6	-	-	83.3	16.7
1 - 3	27	-	-	25.9	40.7	33.3
3 - 5	21	-	-	4.8	61.9	33.3
5 - 7	3	-	-	33.3	33.3	33.3
7 - 9	-	-	-	-	-	-
9 +	8	-	-	12.5	62.5	25.0
Factor: Social Integration					
YOP	N=74		Percentage		
0 -.5	9	-	11.1	33.3	44.4	11.1
.5 - 1	6	-	16.7	50.0	33.3	-
1 - 3	27	-	7.4	51.9	37.0	3.7
3 - 5	21	-	19.0	47.6	28.6	4.8
5 - 7	3	-	33.3	33.3	-	33.3
7 - 9	-	-	-	-	-	-
9 +	8	-	37.5	50.0	12.5	-
Factor: Social Affective					
YOP	N=74		Percentage		
0 -.5	9	-	-	11.1	33.3	55.6
.5 - 1	6	-	16.7	50.0	16.7	16.7
1 - 3	27	-	3.7	22.2	55.6	18.5
3 - 5	21	-	4.8	47.6	33.3	14.3
5 - 7	3	-	-	33.3	66.7	-
7 - 9	-	-	-	-	-	-
9 +	8	-	-	62.5	25.0	12.5

were: 0 to .5 (88.9%), .5 to 1 (83.3%), 1 to 3 (81.4%), 3 to 5 (90.5%), 5 to 7 (66.7%), and 9 plus years (87.5%) YOP.

Subjects in the following years of participation categories rated the social integration incentive factor as "somewhat important" or "important": 0 to .5 (77.7%), .5 to 1 (83.3%), 1 to 3 (88.9%), 3 to 5 (76.2%), and 9 plus years (62.5%) YOP. Sixty-seven percent of subjects participating 5 to 7 years (n=3) rated this incentive factor as "a little important" or "somewhat important" for their motivational reason to participate in Quad Rugby.

Table 4 represents the total sample (N=74) ratings by incentive factor. Subjects rated task (86.5%), fitness (64.8%), social affective (60.8%), ego (50%), and social integration incentives (36.5%), as important or very important for their sport participation motivational reason.

The ranks, means, and standard deviations of the Participation Reasons Scale (PRS) items by motivational incentive factor are outlined in Table 5. Following an analysis of the subject's responses to the individual PRS statements, the items receiving the highest mean rating of importance in relation to why the respondents enjoy participating in Quad Rugby were: "...I enjoy the team interaction of the sport" (M=4.58, SD=.66), "...it offers me an opportunity to improve my ability at the activity" (M=4.42, SD=.70), and "...of the excitement of the activity"

Table 4

Percentage Of Total Sample (N=74) by Likert Rating Scale per Factor

	Likert Rating Scale				
	Not Important	A Little Important	Somewhat Important	Important	Very Important
Factor			Percentage		
FITNESS	-	4.1	31.1	45.9	18.9
EGO	-	5.4	44.6	40.5	9.5
TASK	-	-	13.5	51.4	35.1
SOCIAL INTEGRATION	-	16.2	47.3	31.1	5.4
SOCIAL AFFECTIVE	-	4.1	35.1	40.5	20.3

Table 5

Participation Reasons Scale Items by Motivational Factor: Ranks, Means, and Standard Deviations

Item #	Item	Rank	M	SD
Factor: Fitness				
13.	of the physical feelings I derive from the experience.	13	3.95	.98
16.	it improves my cardiovascular fitness.	5	4.26	.79
17.	it keeps my weight down.	22	3.26	1.41
18.	it gives me a chance to use good equipment.	24	3.05	1.41
19.	it provides an opportunity for exercise.	4	4.31	.83
Factor: Ego				
2.	it gives me a chance to get recognition and other rewards.	25	2.80	1.27
4.	it offers me a chance to compare my skills with those of others.	15	3.84	.97
9.	I like to win.	11	3.96	.87
12.	it offers the opportunity to be recognized for my ability.	21	3.41	1.16
20.	it offers opportunities to measure success.	18	3.72	1.03
26.	it allows me to compete against others successfully.	8	4.14	.85
Factor: Task				
5.	I enjoy the team interaction of the sport.	1	4.58	.66
6.	it offers me an opportunity to improve my ability at the activity.	2	4.42	.70
7.	it gives me a chance to test myself against my own standards.	6	4.24	.93
8.	of the excitement of the activity.	3	4.32	.80
11.	it gives me the chance to perform the skills of the activity.	9	4.07	.87
24.	I like the particular challenges it provides.	10	4.05	1.18

(table continues)

Table 5 (Continued)

Item#	Item	Rank	M	SD
Factor: Social Integration				
1.	it gives me a chance to be with friends.	12	3.95	.95
3.	it pleases others who are close to me.	26	2.64	1.35
10.	it offers opportunities for travel.	19	3.59	1.08
14.	it offers me the opportunity to make new acquaintances.	20	3.54	1.09
Factor: Social Affective				
15.	it provides an opportunity for emotional release.	17	3.77	1.17
21.	I enjoy the inherent elements of sportsmanship.	7	4.20	.84
22.	it offers me the opportunity to be independent.	14	3.85	1.24
23.	it is a form of exercise that is therapeutic.	16	3.82	1.14
25.	it makes me feel needed and wanted by others.	23	3.09	1.33

(M=4.32, SD=.80). These three items factor into task incentives. Analysis of the subjects' responses to the PRS, as presented in Table 5, indicates that the six items that factor into the task incentive category were in the top ten responses by rank and means.

Subjects were also asked which one of the 26 items on the PRS was most important to them as it related to their enjoyment of participation in Quad Rugby. Table 6 outlines the frequency and percentage of all subjects responses. The items receiving the highest percent of response were: "...I enjoy the team interaction of the sport" (18.9%), "...it gives me a chance to test myself against my own standards" (6.8%), "... of the excitement of the activity" (6.8%), and "... it provides an opportunity for exercise" (6.8%). The first three items factor into the task incentives category.

When asked to rate their level of competence in comparison to other Quad Rugby players, 27 subjects (36.5%) responded average, 27 subjects (36.5%) responded above average, and 15 subjects (20.3%) rated their level of competence in the top 10%. Subjects of this study were also asked to rate their level of competence compared to others in their Quad Rugby classification level. The following are the responses by frequency and percentage of the sample group: "average" 26 (35.1%), "above average" 21 (28.4%), and "top 10%" 23 (31.1%).

Table 6

Subjects' Responses to the Most Important Reason (PRS Item) For Enjoying Quad Rugby Participation: Frequencies and Percentage of Total Sample

Item #	Statement	N=74	%
5.	I enjoy the team interaction of the sport.	14	18.9
7.	it gives me a chance to test myself against my own standards.	5	6.8
8.	of the excitement of the activity.	5	6.8
19.	it provides an opportunity for exercise.	5	6.8
4.	it offers me a chance to compare my skills with those of others.	4	5.4
15.	it provides an opportunity for emotional release.	4	5.4
22.	it offers me the opportunity to be independent.	4	5.4
1.	it gives me a chance to be with friends.	3	4.1
6.	it offers me an opportunity to improve my ability at the activity.	3	4.1
24.	I like the particular challenges it provides.	3	4.1
10.	it offers opportunities for travel.	2	2.7
11.	it gives me a chance to perform the skills of the activity	2	2.7
16.	it improves my cardiovascular fitness.	2	2.7
21.	I enjoy the inherent elements of sportsmanship.	2	2.7
9.	I like to win.	1	1.3
13.	of the physical feelings I derive from the experience.	1	1.3
14.	it offers me the opportunity to make new acquaintances.	1	1.3
23.	it is a form of exercise that is therapeutic.	1	1.3
*	Subjects failing to respond to the item.	12	16.2

CHAPTER FIVE

SUMMARY, DISCUSSION AND CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to understand the primary motivational factors that influence participation in sports by quadriplegic athletes. Specifically, the study examined the motivational participation factors of quadriplegic rugby athletes. Subjects of this study were 74 adult quadriplegic athletes (males=68, females=6) participating in the USQRA Quad Rugby Nationals, April 2-5, 1992, at San Jose State University, in San Jose, California. The subjects ranged in age from 19 to 50 years of age (M=30.22, SD=6.63) and all Quad Rugby classifications levels were represented. The subject's years since onset of disability ranged from 1 to 46 years (M=11.72, SD=9.58) and the majority of respondents (64%) reported participating in Quad Rugby from 1 to 5 years. The instruments used in this study to gather data were Brasile's (1989) Participation Reasons Scale (PRS) and Respondent Information Form (RIF).

To test the hypotheses that the classification level and years of participation are not associated with motivational factors (fitness, ego, task, social integration, and social affective) of quadriplegic athletes, independent samples chi-square analyses were performed using SPSS/PC+ (Norusis, 1991). Due to the amount of factors on the PRS and the low

number of subjects in this study, the chi-square assumptions were not met. The results of the cross-tabulation data analyses are used to discuss the findings.

Discussion and Conclusions

Eighty-six percent of the total sample rated the task incentive factor as "important" or "very important" for their sport participation motivational reason. A cross-tabulation of classification levels and motivational participation factors for sport participation revealed that the task incentive factor was rated as "important" or "very important" by the majority of subjects in all Quad Rugby classifications. Cross-tabulation results of years of participation and the motivational factors revealed that the task incentive factor was rated "important" or "very important" by the majority of all subjects when categorized by years of participation. This suggests, as indicated by the responses of the subjects of this study, the motivational importance of intrinsic incentives in providing satisfaction and gratification to individuals with varying degrees of cervical SCI participating in Quad Rugby, even over time.

When asked which one of the 26 items on the PRS was most important to them as it related to their enjoyment of participation in Quad Rugby, 47% of the respondents indicated intrinsic items which load into the task incentive factor. This suggests that the personal sense of fulfillment,

pleasure, and gratification derived from the experience, and not the tangible rewards and prizes, is a primary motivational incentive for participation in Quad Rugby by the subjects of this study. These findings are similar to the results of previous research of participation incentives of wheelchair athletes (Brasile & Hedrick, 1991; Brasile et al., 1991).

Analysis of the data revealed that 65% of the total sample rated the fitness incentive factor as "important" or "very important" for their sport participation motivational reason. Fifty percent or more of every Quad Rugby classification, with the exception of 1.5 (n=3), responded that fitness incentives were "important" or "very important" to their motivation to participate in Quad Rugby. Seventy-one percent of subjects who reported participating in Quad Rugby 3 to 5 years rated this factor as "important" or "very important".

It could be inferred that the sport of Quad Rugby, as viewed by the subjects of this study, is an enjoyable means of exercising, improving overall fitness, and controlling weight. This importance of fitness as a motivational incentive for participation in sport is compatible with the results of previous research of able bodied youth swimmers (Gould et al., 1985), able bodied college students (Mathes &

Battista, 1985), CP athletes (Cooper et al., 1986), and wheelchair athletes (Brasile, 1988; Fung, 1992).

Sixty percent of the total sample rated the social affective incentive factor as "important" or "very important" for their sport participation motivational reason. Cross-tabulation of years of participation and the motivational factors indicate that 89% of those participating 6 months or less (n=8) and 74% (n=20) of the subjects who reported 1 to 3 years of participation in the sport indicated that social affective incentives were "important" or "very important" for their sport participation motivational reason. Items that factor into this motivational incentive are personal feelings or emotions as they relate to sport participation including the enjoyment of sportsmanship, independence, emotional release, and feeling needed and wanted by others. These findings support the findings of Goodling and Asken (1987) which suggested that sport activities can be a vehicle for gaining acceptance by others, in addition to improving the disabled individuals' self-importance. Furthermore, the importance of the social affective factor as a motivational incentive for subjects of this study participating in Quad Rugby three years or less supports previous research (Cooper et al., 1986) which indicated that for disabled athletes, sport opportunities offer an opportunity for tension release and positive social experiences.

Recommendations

Based on the findings of this research, the following recommendations are made for future research and practical application by practitioners.

1. Of the research addressing psychological factors influencing participation in sport by individuals with a SCI (Brasile, 1988, 1989; Brasile & Hedrick, 1991; Brasile, Kleiber, & Harnisch, 1991; Fung, 1992; Hopper, 1986; Kennedy, 1980; Ruckert, 1980), results have varied and been inconclusive. In addition, previous research has primarily addressed the reasons for participation in sport by individuals with paraplegia, not quadriplegia, SCI. Due to the high occurrence of disabling cervical injuries yearly, the positive role that sport can play in the physical, psychological, and social rehabilitation resulting from these injuries, limitations of this study including sample size, and the inability to generalize results of this study to other populations, additional research of the motivational participation factors of individuals with a quadriplegia SCI is recommended.

2. Due to the high number of factors on the PRS and the low number of potential subjects participating in Quad Rugby at any one time or location, further refinement of the instrument, such as elimination of the ego and social integration incentive factors due to their low ratings by

subjects of this study, is recommended for future research into the motivational participation incentives of Quad Rugby athletes.

3. Although the subjects of this study were limited to elite quadriplegic rugby athletes competing in the USQRA Quad Rugby Nationals, they are believed to be representative of other quadriplegic rugby athletes because of their diverse demographic characteristics and, therefore, the descriptive results from this can be generalized to other quadriplegic rugby athletes. Based on the descriptive results of this study, it is recommended that practitioners such as adapted physical education specialists, recreation therapists, and coaches working with quadriplegic rugby athletes emphasize and provide opportunities to experience the intrinsic rewards available from participation in the sport as well as the physical fitness benefits.

4. The descriptive results of this study suggest that social affective incentives such as feeling needed or wanted by others is an important motivational participation incentive for participation in Quad Rugby by those with less than three years of participation in the sport. In addition, subjects of this study participating in Quad Rugby six months or less rated this incentive higher than fitness incentives. Therefore, it is recommended that athletes/peers already participating in the sport would be advantageous to the

growth of Quad Rugby in an effort to recruit/solicit new participants.

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Appendices

Appendix A

Informed Consent to Participate in Research

This project was approved by the Human Subjects -Institutional Review Board of San Jose State University

Dear Subjects,

I need your help in conducting a study which is part of my masters thesis concerning the motivational participation incentives of wheelchair athletes competing in Quad Rugby. The results of this study should increase my understanding of participation incentives by wheelchair athletes in recreational sports activities. Attached is a questionnaire designed to better understand your personal reasons for participation in relation to the areas listed in the statements.

You understand that:

1) There are no anticipated risks or benefits to you by agreeing to participate in this study.

2) The data recorded in this study will be done in a manner insuring subjects' anonymity.

3) Your consent is given voluntarily without being coerced; you may refuse to participate in this study or in any part of this study, and you may withdraw at any time, without prejudice to your relations with San Jose State University or any other participating institution.

4) Any questions about your participation in this study will be answered by Tom Ferr at (408) 336-8047. Complaints about the research may be presented to Dr. Craig Cisar (advisor for Human Performance graduate students) at (408) 924-3018, or Dr. James Bryant (Department chair for Human Performance) at (408) 924-3010. For questions or complaints about research,

subject's rights, or research-related injury, contact Serena Stanford, PH.D, Associate Vice President of Graduate Studies and Research, at (408) 924-2480.

5) Thesis committee members, Dr. Nancy Megginson, Dr. David Furst, and Dr. Emily Wughalter will have access regarding information about this study.

6) The results of this study and information regarding the study will be kept at Tom Ferr's address.

7) The results of this study may be published upon completion of the thesis project. Again, complete anonymity of subjects participating in the study will be insured. If you would like information regarding the results of this study upon completion, please contact me at the above telephone number.

Thank you,

Tom Ferr
Graduate Student
San Jose State University

Appendix B

Participation Reasons Scale

Modified for Quad Rugby

Appendix C

Respondent Information Form

Modified for Quad Rugby

RESPONDENT INFORMATION FORM

Direction:
This form is designed to obtain descriptive information form survey participants so that a greater understanding might be obtained regarding the make-up of all respondents. Three responses will only require a check (X) in the appropriate set of brackets. All responses will be kept confidential. Thank you for your assistance.

1. Your age? _____ years

2. Your gender?
   Male..... 1 ( )
   Female..... 2 ( )

3. How many years have you been participating in this sport?
   0-6 mo..... 1 ( )
   6 mo.-1yr..... 2 ( )
   1 yr.-3 yrs..... 3 ( )
   3 yrs.-5yrs..... 4 ( )
   5 yrs.-7yrs..... 5 ( )
   7 yrs.-9 yrs..... 6 ( )
   over 9 yrs..... 7 ( )

Please answer the next three questions by circling the appropriate number in each of the given scales.

4. To what extent is participation in Quad Rugby important to you?

1	2	3	4	5
Not Very	A Little Important	Somewhat Important	Important	Of Extreme

5. Compared to other Quad Rugby players how would you rate your level of competence?

1	2	3	4	5
Bottom 10%	Below Average	Average	Above Average	Top 10%

6. Compared to others in your classification how would you rate your level of competence?

1	2	3	4	5
Bottom 10%	Below Average	Average	Above Average	Top 10%

7. How many hours do you spend (per week) on this activity? _____ Hrs.

8. Years since onset of disability? _____

9. What is your Quad Rugby classification level?
   0.5..... 1 ( )
   1.0..... 2 ( )
   1.5..... 3 ( )
   2.0..... 4 ( )
   2.5..... 5 ( )
   3.0..... 6 ( )
   3.5..... 7 ( )

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February 27, 1992

Tom Ferr
P.O. Box 162
Ben Lomand, CA 95005

Dear Mr. Ferr:

Pursuant your request I am forwarding a copy of the **Participation Reasons Scale** which I developed for use in understanding participation motivation related to incentives for participation in sport. You have my permission to copy this form and use it in your Thesis. I will assume that if you use this instrument you will give me proper acknowledgment. The instrument is copyrighted and the reliability of the instrument can be found in an article published in the *Therapeutic Recreation Journal*, 1st Quarter, 1991.

Good luck in your endeavors and please keep me informed as to how your research progresses.

Sincerely,

Frank M. Brasile, Ph.D., CTRS
Assistant Professor and Chair
School of HPER Graduate Program