To the Graduate Council:

I am submitting herewith a dissertation written by Pearl Ocampo Conroy entitled "Physical and Psychological wellbeing and sport competition." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Recreation, Tourism, and Hospitality Management.

Francis T. Hendrick, Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:

Associate Vice Chancellor and
Dean of The Graduate School

THE RELATIONSHIP BETWEEN PHYSICAL AND PSYCHOLOGICAL WELLBEING AND SPORT COMPETITION



A Thesis
Presented for the
Master of Science
Degree
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Pearl Ocampo Conroy
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DEDICATION

"There are high spots in all of our lives and most of them have come about through encouragement from someone else. I don't care how great, how famous, or successful a man or woman may be, each hungers for applause."

~ George M. Adams

This thesis is dedicated to my best friend and loving husband, Stephen.

You have given me the support to reach what I thought was the unthinkable.

Thank you, for the applause.

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ABSTRACT

The National Veterans Wheelchair Sports have provided disabled athletes with the opportunity to experience sports on a competitive level as well as recreational level. The purpose of this study is to determine the effects of sport competition on the perceived physical and psychological wellbeing of participants that competed in the National Veterans Wheelchair Games (NVWG). The United States Department of Veterans Affairs Recreation Therapy Service has a strong interest on the quality of their programs and effects on its veterans. Their purpose is striving to strengthen and enhance rehabilitation among their veterans by assisting in the therapeutic interventions and physical performance of veterans.

The study was developed to determine veterans' perceptions of their physical and psychological wellbeing after competition in the NVWG. Utilizing previous surveys to reveal participant's perception on physical health, activity participation, physical rehabilitation, self-efficacy, and self-esteem developed the study's survey. A total response of 51 usable questionnaires was recorded.

Forty-nine men and two women completed and returned the survey. Five sections of the survey were created to clearly identify the relationship of the general information of participants and the research questions of the survey. Sections included: 1) general information regarding veterans' participation in recreation, 2) information on perceived physical health, increased range of activity, and benefits from physical activity, 3) participants' perceptions of levels of self-efficacy after competing in the NVWG, and 4) participants' perceptions of levels of self-esteem after competing in the NVWG.

Surveys were distributed among participants at the 1999 Sports Fitness Expo in Puerto Rico and the VA's Spinal Cord Injury Centers. Once the surveys were completed, the data was collected and analyzed at the University of Tennessee's Computational Consulting Center. Programs used to analyze the data included Pair t-tests, one way ANOVA, Tukey Post Hoc, and independent sample t-tests to decipher the gathered data. The mean percentage , p values, and frequencies of the results of the survey were also analyzed.

The research results suggest that there is significance in physical activity before injury and after sport competition. Further findings indicate that a moderately high self-efficacy and high self-esteem are effected by sport competition. Unfortunately, a before injury data collection was not attained to compare a significant difference. In addition, the study indicates that self-efficacy and self-esteem levels vary in comparisons of age groups and different disabilities.

These results of the study can imply that sport competition has an impact on physical and psychological wellbeing. Data supports the purpose of the study. However, several factors influencing the physical and psychological wellbeing and sport competition are necessary for further research. Moreover, several implications indicate various topics future studies regarding the impact of sport competition.

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CHAPTER ONE

Introduction

The National Veterans Wheelchair Sports have provided disabled athletes with the opportunity to experience sports on a competitive level as well as recreational level. The purpose of this study is to determine the effects of sport competition on the perceived physical and psychological wellbeing of participants that competed in the National Veterans Wheelchair Games (NVWG). The history of wheelchair sporting events, issues in sports and disabilities, psychological and physiological benefits of recreational sports, and interviews of wheelchair athletes discuss issues regarding disabled athletes built on the topic and foundation of the literary review. The history of the wheelchair sporting events provided an evolution of how the National Veterans Wheelchair Games replicated the goals of the Paralympic Games (Online: History of the national wheelchair games, 1998). The issues in sports and disabilities provided the layout of how physical activity among individuals with disabilities are changing and how the change is viewed upon differently (Wankel & Berger, 1990). These changes need to be addressed in order to study the psychological and physiological benefits of sports recreation and programs. Finally, the personal interviews strengthen the hypotheses that sport programs are beneficial to the human spirit as well as the psychological well being (Ramussen, 1998).

Throughout the literary review process, the information based on research, overviews, and interviews provided similar outcomes. Although studies varied due to the particular subjects being studied i.e., Campbell's (1995) subjects with congenital disabilities versus acquired disabilities and Patrick's (1986) novice athletes versus

veteran athletes, the results concluded that more studies were needed to support their hypothesis. Nevertheless, recreational sports, sports programs, and physical activity indicate a positive effect among the participants.

Statement of Purpose

The purpose of the study is to determine the effects of sport competition on perceived physical and psychological wellbeing of participants that had competed in the National Veterans Wheelchair Games (NVWG). The NVWG is an annual recreation therapy program to strengthen and enhance rehabilitation among their veterans, specifically, assisting in the therapeutic interventions and physical performance of veterans.

Research Questions

The research questions investigated in this study were:

1. Does sport competition impact perceived physical wellbeing?
    A. Does sports competition/recreational activity influence perceived physical health?
    B. Does sport competition/recreational activity involvement increase range of activity?
    C. Does sport competition/recreational activity impact the rehabilitative process?

    These questions build on the physiological results of recreational or competitive sport participation.

2. Does sport competition impact perceived psychological wellbeing?

   A. Were levels of self efficacy positively effected after competing in the NVWG?

   B. Were levels of self-esteem positively effected after competing in the NVWG?

   C. Is there a difference in levels of self-efficacy and self-esteem between age groups or disabilities among individuals who competed in the NVWG?

These questions build on the psychological aspects among participants of competitive sport.

Assumptions

In order to determine the results of this study, the following assumptions were made:

1. The participants fully understood the questions.
2. The participants truthfully answered the questions.
3. The participants who completed the survey competed in the NVWG.
4. Sport competition has an impact on participant' perceived physical and psychological wellbeing.

Limitations

Limitations that affect the study were:

1. Survey distributor at the Sports Fitness Expo on site registration in Puerto Rico may not dispense the surveys efficiently and expediently.

2. Survey distributor at the Spinal Cord Injury Units may not dispense the surveys efficiently and expediently.
3. The return rate of the surveys may effect the size of the subjects.
4. Data collected are limited to subjective responses of the survey participants.

Delimitations

Delimitations that affect the study were:

1. Data was collected at the Sports Fitness Expo on site registration for the NVWG 1999 on June 21-28 in Puerto Rico.
2. Data was collected from random Spinal Cord Injury units of the Department of Veterans Affairs.
3. The selected participants' data was collected late June 1999 to early August 1999.
4. The study focused on sport competition's impact on the perceived physical and psychological wellbeing.
5. Participants of the study have competed in the NVWG at least one time.

Definition of Terms

The purpose of this section is to define terms that reflect the researcher's use in context.

Sport competition: An event of organized sports.

Physical wellbeing: fulfilled physical fitness by achieving relaxation, strength, energy, and the feeling to engage in new physical opportunities.

Physiological: "Characteristic of or promoting normal, or healthy functioning". (McKechnie, 1983, p. 1353).

Psychological wellbeing: fulfilled positive mental and emotional states.

Self-efficacy: For oneself to have more personal control in his/her life. A person's appraisal of his or her ability to accomplish a particular task or behavior (Donatelle & Davis, 1993, p.11).

Self-esteem: Feeling good and comfortable about oneself; positive self-acceptance. (Donatelle & Davis, 1993, p.21).

Significance of the Study

This study examines the perceived physical and psychological benefits of participants who competed in the National Veterans Wheelchair Games (NVWG). Since there have been few studies (Pinckney, 1998) on the games contribution to participants' physical and psychological wellbeing, the significance of the study will be valuable to the Department of Veterans Affairs Recreation Therapy Service. Also, participants of the NVWG may use this study as a resource for reassurance or reinforcement of personal conceptions of the benefits of sport competition. This study is a resource for individuals with disabilities to encourage participation in sport competitions. Participants' feelings of inability can be overcome after participating in the NVWG. During competition, self-efficacy through personal challenge and self-esteem through camaraderie appraisals among participants contributed to participants' perceived quality of life. This study will be helpful for understanding the benefits of sport participation.

Participants' feedback of the psychological and physical outcomes due to the games is a valuable factor in determining the successes of programming. The information provided is useful to strengthen programs of the NVWG. Programmers within the VA therapeutic recreation programs can utilize this study to support their mission of ..."providing quality treatment interventions for veterans"..."Also, the commitment of the advancement of recreation therapy through on-going education, clinical training, and research" (Mission Statement, 1998).

CHAPTER TWO

REVIEW OF LITERATURE

The purpose of the review was to conduct an analysis of data collected for the Department of Veterans Affairs Recreation Therapy Service's National Veterans Wheelchair Games. The study determined how the National Veterans Wheelchair Games affected disabled athletes. The articles sighted in this study contained information related to wheelchair sports and recreational sport participation. The review provides supportive information for the study of sport competition on the perceived physical and psychological wellbeing of participants that competed in the National Veterans Wheelchair Games (NVWG).

The format of the study set the groundwork of the study of recreational sport participation and physical activity among individuals with disabilities. The chapter was organized into four categories. First, the study began with the histories of sporting events offered to individuals with disabilities. Next, issues of disabilities and wheelchair sports are discussed to provide an understanding of athletic and recreational participation. Then, physical benefits of participation in physical activities and sport competition were revealed to support the positive effects of physical activity on the body's performance. Furthermore, psychological benefits of taking part in recreational sports and sport competition were mentioned to comprehend satisfaction levels of participants. Finally, wheelchair athlete's stories provide a humanistic insight of participants' feelings toward sport participation.

Sporting Events

In 1960, the Paralympic Games held it's first competition for athletes with spinal-cord injuries (A History of the Paralympic, 1998). An unknown author developed A History of the Paralympic Games (1998) to inform readers of the background of sport for the disabled. Guttman developed the Games for individuals with disabilities to participate in an event comparable to the Olympic Games (A History of the Paralympic, 1998). As interest strengthened and participation increased throughout the years, in 1972, the Paralympic Games were open to athletes with different disabilities (A History of the Paralympic, 1998). In conclusion, the notoriety has raised the level of the Games. Wheelchair athletes are competing alongside the elite (A History of the Paralympic, 1998).

Similar to the Paralympic Games, the National Veterans Wheelchair Games give individuals with disability the chance to participate in sports. Veteran Affairs (VA) provided opportunities for disabled veterans' recreation and sport programs. After WWII, Veteran hospitals provided physical activities for paralyzed and disabled veterans (A History of the National, 1998). In 1980, wheelchair athletics was recognized to have a profound positive effect on the rehabilitation of veterans (A History of the National, 1998). Recreation therapy in the VA was born. In 1981, the International Year of Disabled Persons was created to provide opportunities for individuals with disabilities in the sport realm (A History of the National, 1998).

The National Veterans Wheelchair Games' continued growth in popularity is due to the positive outcomes of participants' sense of commonality and mutual esteem (A History of the National, 1998). Recreation and sport participation is vital to

rehabilitative programs.

Issues in Sports and Disabilities

Changes in sport for the disabled provided a basis on the issues that surround sport activities for individuals with disabilities (Wilhite, Mushett, & Calloway, 1996). Wilhite et al. (1996) summarized the issues of equality and inclusion in the history of sports for the disabled. Participation in sports in the past has been viewed as a part of rehabilitation (Wilhite et al., 1996). In 1989, sport in rehabilitative purposes to sport for "sport's sake" has made the transition into the Paralympic program (Wilhite et al., 1996). Due to the changing views of sports for individuals, in 1995, the International Paralympic Committee (IPC) congregated to clarify the future of sports and disability (Wilhite et al., 1996).

In addition to the transition of viewing sports for the disabled from a medical model to a sport model, inclusion of the Paralympic Games into the Olympic Games posed questions for the equality of sports and disability (Wilhite et al., 1996). Integration of athletes with disabilities in a sport competition without disabilities raised several issues. These issues are developed the disability sports movement.

Wilhite et al. (1996) concluded that there was a need for prescriptive programs. Prescriptive programs are necessary to encourage lifestyle changes for lasting positive effects in sport and physical activity participation. The direction for inclusion in sports is in demand. Wilhite et al. (1996) inferred that disability programs in sports for the concept of competition and fun are limited and relatively nonexistent.

Wilhite et al. implies that the issues presented would aid in the transformation of sports and disability (1996). Research in sports and disability will enable researchers and practitioners with resources to pursue their studies in physical activity, development, and participation among participants with disabilities (Wilhite et al., 1996).

Physical Benefits

The Surgeon General reported that physical activity has several benefits for persons with disabilities (Physical Activity and Health, 1999). An unknown author of the Surgeon General provided information to give persons with and without disabilities insight on the advantages of physical activity. The Surgeon General stated key guidelines to getting involved in an effective and safe physical program. Tips such as slowly increasing your activity and consulting a physician were included in the guidelines (Physical Activity and Health, 1999). In addition to key messages, needs and social support that effect participation were mentioned. Finally, Physical Activity and Health (1999) listed the benefits of physical activity (i.e., improve stamina and muscle strength; helps control arthritic joint swelling and pain). This invaluable and accessible information is listed on the Internet for further education on physical activity and health.

Similar to the Surgeon's General information, Weitzenkamp, Gerhart, and Chase of Paraplegia News discussed the importance of exercise among individuals with a spinal-cord injury (SCI) (1999). The article is an informational piece that incorporated the benefits of exercise programs for individuals with SCI (1999). Weitzenkamp, et al., (1999) revealed topics such as flexibility, strength, appearance, and cardiovascular fitness as reasons for exercise programs and associated it to persons with SCI.

Exercise is said to influence range of motion by stretching to enhance flexibility (Weitzenkamp et al., 1999). Weitzenkamp et al., (1999) stated that increasing flexibility effects the balance of muscles that become stiff due to inactivity. With the assistance from therapists, joint movement to reach full range of motion helps persons with SCI to become more independent (i.e., transfers, reaching, and weight shifts) (Weitzenkamp et al., 1999).

Weitzenkamp et al., (1999) also discussed the importance of strength training. Strength training is not only important for mobility, it has been stated that strength decreases aches and increases work time (Weitzenkamp et al., 1999). Tips for tone development and muscle endurance were stated for beneficial and efficient exercise programs.

Furthermore, Weitzenkamp et al., (1999) disclosed that exercise enhances appearance with "realistic expectations". Persons with SCI who engaged in pragmatic exercise programs can improve posture and self-image (Weitzenkamp et al., 1999). Similar to exercise programs for individuals without disabilities, exercise programs for individuals with SCI that combined strength and flexibility training, positively influenced personal appearance (Weitzenkamp et al., 1999).

In addition to flexibility, strength, and appearance, exercise programs are beneficial to cardiovascular fitness. Current research stated that regular consistent aerobic exercise increases endurance levels (Weitzenkamp et al., 1999). Programs designed to meet the needs of individuals are vital for a successful outcome. Weitzenkamp et al., (1999) stated that regardless of what type of exercise program

individuals with SCI choose, safety is vital and consultation of a doctor is advisable to maintain or enhance functions of the joints and muscles.

Blinde and McClung , professors (1997) of the Department of Physical Education at Southern Illinois University studied persons with physical disabilities perceptions of how participation in recreational activity influenced and changed views of the physical and social selves. To define physical self, Blinde and McClung (1997) observed how participants of the study (a) used their bodies in new way, (b) viewed their physical attributes, (c) observed physical aptitudes, and (d) calculated participation in new physical activities.

Blinde and McClung's (1997) sample involved 23 participants (11 women and 12 men). Women's mean age of 31.5 and men's mean age of 26.2 encompassed the study. The participants were college students from the Illinois area. Diversity of the group consisted of Caucasian, African American, and Native American. Also, disabilities in the final sample included cerebral palsy (n=6), head injuries (n=4), quadriplegia (n=3), osteogenesis imperfecta (n=3, muscular dystrophy (n=1), and spina bifida (n=1). The study focused on the relationship of characteristics between physical disability and recreational participation (Blinde & McClung, 1997).

Blinde and McClung (1997) used an open ended interview format to collect the data. The questions used in the study covered four areas: (a) participants' feelings of the experience, (b) perceptions of physical ability and physical appearance, (c) socialization among the community, and (d) participants' feelings of independence (Blinde & McClung, 1997). Interviews were tape recorded and completed 2 weeks after every time participants finished an available activity (i.e., horseback riding, swimming, fitness,

weightlifting, racquetball, bowling, tennis, fishing, walking, and Tai Chi). Twenty participants' activity period lasted between 5 and 10 weeks while three participants pursued an activity period lasting 12, 16, and 24 weeks (Blinde & McClung, 1997).

Blinde and McClung (1997) results consisted of direct statements to record a variety of feelings that came out and could only be captured through words. Participants discovered their bodies in a different light. For example, one participant stated, '...it gave me a different perspective...shed the chair for a while' (Blinde & McClung, 1997). Another participant in Tai Chi commented that since he participated, he was able to 'find more movements' (Blinde & McClung, 1997). Blinde and McClung's (1997) study revealed that participants' recreational experience did not betray participants' functional ability or appearance.

In addition to the participants' feelings about their bodies, the experiences that were provided by the study created a sense of strength, health, and confidence among its participants (Blinde & McClung, 1997). Since the study provided insight to participants' abilities, individuals in the study redefined his/her physical disabilities and attempted new activities to add to his/her lifestyle (Blinde & McClung, 1997). Participants found a sense of independence by activity. The newly found independence not only changed the physical self, but also, participants' social self had a positive effect. The activities opened a social life for many individuals in the study. Participants in the study stated that the activities became conversational pieces in social settings. Furthermore, the activity was a common ground between newly developed friendships. (Blinde & McClung, 1997).

In conclusion, through the participants' statements, participation in recreational activities for persons with physical disabilities is beneficial to the physical and social wellbeing. Although the sample size was not a larger representation of diverse groups (i.e., nationalities and gender), Blinde & McClung's data supported the theory of positive effects of recreation among individuals with disabilities. Also, programs designed to meet the needs of the participation are important for developing positive outcomes.

Psychological Benefits

Research has proven that individuals who participate in sports and recreational activities have positive outcomes due to their involvement. Patrick (1986) conducted a study to determine the effect of athletic participation among individuals who use wheelchairs. Due to the lack of studies about the outcomes of recreational and sport participation, research is necessary for therapeutic possibilities among individuals with disabilities (Patrick, 1986).

Patrick's (1986) sample included 34 participants, of which 22 previously participated in sport events. Patrick (1986) divided his subjects into three categories (12 veteran athletes, 12 non-athletic individuals, and 10 novice wheelchair athletes). Each group individually completed two questionnaires (Acceptance of Disability Scale and the Tennessee Self-Concept Scale) to measure about 10 dependent variables, i.e., total p score (level of self-esteem), behavior, family self, acceptance of disability, moral-ethical self, self-satisfaction, identity, physical self, personal self, and social self. Since the characteristics of the subject varied, an analysis of a covariance (ANCOVA) was used to calculate the results of the study. Also, the Scheffe Multiple comparison Method

enabled Patrick (1986) to establish which combination of the three groups had a distinguished difference.

Due to previous studies by Linkowski and Dunn, the tests received the best supportive results of the second test after a period of 3-6 months (Patrick, 1986). Patrick (1986) allowed for a 5 month period after the competition to administer the post-test. Patrick (1986) indicated the pretest and posttest scores to be higher among novices than veterans in self-esteem, self worth, and acceptance.

The results of the tests were different in the various dependent variables. Patrick (1986) indicated the pretest scores were higher than novices and non-athletes. However, the posttest scores revealed an increase in $\underline{p}$ scores (denoted as the self-esteem levels) among the novices and a decrease in the $\underline{p}$ scores among the veterans. The novice average scores ranged from *346.3 to 368.8.* The score indicates an increase of 22.5 in the average $\underline{p}$ score. In addition to the increase in self-esteem among the novices, the behavior scales mean scores increased by *8.9* while the veteran scores decreased by *1.1*.

Patrick (1986) concluded that the study's results were influenced by the limitations. Factors such as a small sample and disability level of the subjects were not considered in the study, thus providing support for only part of his hypothesis. However, throughout the study and its lack of inconsistencies, the results of the novices do prove that athletics do influence individuals with disabilities.

Patrick (1986) implied that wheelchair athletics effect self-concept and acceptance of disability among novice athletes. The results indicate the importance of professional encouragement also effects the participants' self-concept and acceptance of

disability. Furthermore, the novices are resourceful indicators of the importance of sports and recreation among adult individuals with disabilities.

Similar to Patrick's findings, Wankel and Berger, professors at the University of Alberta and Brooklyn College of the City University of New York, respectively, examined the psychological outcomes of individuals participating in sport and physical activity. The overview provides a synopsis of Wankel and Berger's (1990) results of using Csikszentmihalyi's model of sport values to determine the benefits of participation.

Wankel and Berger (1990) state the need for continuance in research for the variety of outcomes in testing the psychological benefits of sport and physical activity. The different outcomes examined are personal enjoyment, personal growth, social integration, and social change (Wankel & Berger, 1990). Based on the model, the ideal sport activity involves all outcomes.

Wankel and Berger (1990) discovered that previous research indicated that physical activity has a positive effect on psychological wellness. However, the correlation between physical activity and psychological wellness is not defined (Wankel & Berger, 1990). Specification of the type of activities and the meaning of theories and operations have led to inconclusive expositions (Wankel & Berger, 1990). Regardless of misinterpretation of activities or definition, the gap to understanding the relationship between physical activity and psychological status is narrowing (Wankel & Berger, 1990).

Wankel and Berger (1990) placed emphasis on the effects of physical activity on anxiety and depression. In previous research, the State-Trait Anxiety Inventory and the Tension/Anxiety scale of the Profile of Mood States were used during exercise research

(Wankel & Berger, 1990). Supporting the theory, Wankel and Berger (1990) stated that positive outcomes of decreased anxiety and increased self-efficacy 15 months after a 10 week jogging program. In addition, Berger tested the effects of jogging among college students to determine the psychological benefits (1990). The results were supportive of the positive relationship between exercise and reduction of psychological stress.

In addition to the decreased anxiety, the reducing depression occurs after bouts of exercise (Wankel & Berger, 1990). The depression subscale of the POMS has been used in prior tests to determine mood (Wankel & Berger, 1990). The effects of physical activity and depression have been reported to have a decrease in depression levels (Wankel & Berger, 1990).

Wankel and Berger concluded that exercise has had an effect of the reduction of anxiety and depression. However, other factors such as physiological and environmental mechanisms may contribute and influence the results of the tests (Wankel & Berger, 1990). Also, the duration, intensity, and frequency of exercise may sway the results of a test (Wankel & Berger, 1990). Therefore, further research on sport and physical activity on the effects on participants' psychological state is necessary to draw a conclusion (Wankel & Berger, 1990).

Campbell (1995), a doctoral student of Dr. Graham Jones at Loughborough University, conducted another study on the effects of wheelchair sports among individuals with disabilities. The study determined the psychological well being of participants with congenital and acquired disabilities who participated in wheelchair sports. Subsequent to a study by Greenwood, Dzewaltowski, French, Paulsen, and Sherrill, Campbell and Jones (1995) further developed a study to examine the effects of

sport and exercise among wheelchair users. Subjects in the study were individuals who were born with a disability and individuals who acquired their disability because of an injury.

Campbell and Jones' (1995) sample included 93 sport participant wheelchair users. The subjects were divided into two groups, 50 participants (36 males and 14 females) who were inherent with the disability and 43 (36 males and 7 females) participants who acquired their disability (Campbell, 1995). The average age of the inherent group was 19.9 years and the average elapsed time the acquired group had a disability was 12.4 years (Campbell, 1995). Based on the time participants acquired their disabilities, the subjects were chosen to determine the effects of exercise and sport participation among individuals who use wheelchairs.

Campbell and Jones' research design is quantitative in nature. In order to measure the psychological well being, the Profile of Mood States scale (65 adjective questionnaire), State-Trait Anxiety Inventory, Rosenberg's Self-esteem Scale, and Pearlin and Schooler's 7-item scale were utilized. The subjects were obtained at wheelchair sporting events. The subjects interested in the study returned their data for computation (Campbell, 1995).

Campbell (1995) obtained the results by using a one-way multivariate analysis of variance test. Campbell's study (1995) concluded with a difference between the two groups, Wilks Lambda + .71, $p < .001$. However, the subjects who acquired disabilities showed a higher self-esteem and mastery than those who had congenital disabilities (Campbell, 1995). Individuals with congenital disabilities sustained the idea that individuals who had their disability earlier in life did not develop a strong sense of

independence and personal skills to overcome stressful situations (Campbell, 1995). As for self-esteem and mastery, individuals with congenital disabilities also had a lower score than individuals who acquired disabilities later in life (Campbell, 1995). Each groups' profile showed the "iceberg profile" (Campbell, 1995).

Campbell (1995) concluded that studies should focus on the psychological well being of individuals who acquired disabilities. Yet, the importance of when the disability occurred should be included in studies regarding sports and psychology. To determine the effects of wheelchair sports among individuals with disabilities, athletes with acquired disabilities have a higher psychological well being (Campbell, 1995).

Campbell (1995) implied that wheelchair sports influence the psychological well being of individuals who acquired or was born with a disability. The results indicate the importance of including factors such as gender and functional ability to determine the psychological effects of participants in wheelchair sports.

Unlike Campbell's study, Heimer and Relac (1998), faculty members of the Physical Education Department at the University of Zagreb provided an overview for inclusion of recreational sport and sports programs as part of physical rehabilitation. Based on previous studies, the importance of physical activity is vital for positive effects on the psychological status of individuals with disability (Heimer & Relac, 1998). The reason for the overview was to acknowledge the importance of physical activity as part of the rehabilitative process (Heimer & Relac, 1998).

Heimer and Relac (1998) reported that the physical and psychosocial health improves based on the rehabilitative programs. The purpose to choose a recreational sport program is to encourage independence and confidence among the participants. The

sports programs prompt the individuals to gain a positive regard for themselves (Heimer & Relac, 1998).

Heimer and Relac (1998) concluded that it has been noted that unlike the effects of physical activity on the body, the effects of the physical activity on the mind are seldom discussed. The importance of physical activity should be implemented in rehabilitative programs to improve the quality of life during and after the rehabilitative process for individuals with physical disability (Heimer & Relac, 1998). In order to enhance self-esteem and confidence among individuals with disabilities, the introduction of recreation sports and sport programming is essential in the rehabilitation process (Heimer & Relac, 1998).

In addition to the lack of focus of the psychological benefits in physical activity, Heimer and Relac (1998) implied that the groundwork for an adapted program among hospitals is somewhat non-existent. Since sport activities are scarce among the staff and facilities, recreational sports programs are provided by outside resources. During the off season, recreation centers should be considered for recreation and sport services (Heimer & Relac, 1998). Also, an emphasis on regular participation throughout the week in sports and recreational activities should be a part of the rehabilitative process (Heimer & Relac, 1998). To accomplish the deficiencies in sports participation as part of rehabilitation, recreational facilities, staff training, and rehabilitative programs need to work together to promote well being among individuals with disability (Heimer & Relac, 1998).

Wheelchair Athlete's Stories

Pinckey, a writer for the Fort Worth Star-Telegram (1998) provided the people of Arlington with an inspirational story of an Army veteran who lost hope, spirit, and self-esteem due to a tragic incident. The interview was given and told to inform individuals of a tragedy that has developed into a success story. Joe Jackson was paralyzed after his wife shot him. However, through constant rehabilitation and support from the Veterans Administration offices, Jackson has overcome his troubles and has become a role model for all athletes with a disability. Jackson, a 20 to 30 medal winner has learned through the National Veterans Wheelchair Games that winning the medals is not everything (Pinckney, 1998). He uses the competition time to increase the awareness among individuals in wheelchairs that life continues after injury. Jackson claims that through his experiences with the shooting and the Games that individuals can achieve anything (Pinckney, 1998).

Similar to Joe Jackson's story, Rasmussen (1998) of the St. Petersburg Times interviewed two athletes, Eugene Sigler and Linda deFluir. The story was revealed to provide insight of the benefits of the National Veterans Wheelchair Games. Although Sigler and deFluir were medal winners of the Games, the emphasis on the overwhelming feelings is what is remembered throughout the experience (Rasmussen, 1998). In 1978, Sigler was in a car accident that left him paralyzed from the waist down. Similar to other individuals who acquired their disabilities later in life, he felt pity for himself and was angry. Rasmussen (1998) stated that in 1982, Sigler began participating in wheelchair sports. Sigler reported that through his participation in sports, his self-esteem increased and his purpose in life had meaning.

Likewise, Linda deFluir's experiences with the Games resulted in similar feelings. Through the games and physical activity, deFluir lives the phrase, "Where there is a will, there is a way" (Ramussen, 1998). deFluir's multiple sclerosis gave her a crutch to feel sorry for herself. Yet, through the participation in sports, she learned that depression is not a part of her lifestyle. Sports have provided another view of life for individuals with disabilities. Rasmussen (1998) concluded that participation in sports have given them a second chance at life.

Summary

The history of wheelchair sporting events, issues in sports and disabilities, psychological benefits of recreational sports, and interviews of wheelchair athletes have been addressed. Each section built on the topic and foundation of the literary review. The history of the wheelchair sporting events provided an evolution of how the National Veterans Wheelchair Games replicated the goals of the Paralympic Games. The issues in sports and disabilities provided the layout of how physical activity among individuals with disabilities are changing and how the change is viewed upon differently. These changes need to be addressed in order to study the psychological benefits of sports recreation and programs. Finally, the personal interviews strengthen the hypotheses that sports programs are beneficial to the human spirit as well as the psychological well being.

Throughout the literary review process, the information based on research, overviews, and interviews provided similar outcomes. Although studies varied due to the particular subjects being studied i.e., congenital versus acquired disabilities and novice versus veteran athletes, the results concluded that more studies were needed to support

their hypothesis. Nevertheless, recreational sports, sports programs, and physical activity indicate a positive increase in the psychological well being of participants.

Ideas that have been omitted in the review included information on the social benefits of participation in sport. The Department of Veterans Affairs' Recreation Therapy Services' interest of the research was based on the quality of life with an emphasis on the psychological and physical domains.

Implications

The literary findings are applicable to further research. The research provides a basis and an opening for needed research in the effects of sports and recreation participation among individuals with disabilities. For a stronger base of information on the benefits of physical activity, a wider spectrum of subjects should be included in the studies. In order to tie all the information, the Department of Veterans Affairs need to provide more research on the benefit of the National Veterans Wheelchair Games.

CHAPTER THREE

METHODOLOGY

The purpose of the study is to determine the effects of sport competition on the perceived physical and psychological wellbeing of participants in the National Veterans Wheelchair Games (NVWG). This chapter provides information on the subjects, rationale, procedures, and evaluation for the study.

Subjects

This study was completed with a convenience sample of 51 participants who had previously competed in the National Veterans Wheelchair Games. Participants were asked to complete a multiple-choice survey (Appendix A). The participants of the study had various types of injury/disability, i.e., paraplegia, quadriplegia, spinal cord injury.

Rationale

The National Veterans Wheelchair Games was the sport competition chosen because of the Department of Veterans Affairs' strong interest on veteran athletes' physical and psychological wellbeing and the limited studies related to this topic. Participants were asked to complete a multiple-choice survey for the study. Because participants were surveyed at the NVWG registration and the Department of Veterans Spinal Cord Injury (SCI) Centers, a questionnaire was the most efficient method of collecting data.

Instrumentation

The instrument was developed in a manner to keep participants' information confidential. Names were excluded on the survey to protect the identity of the participants of the study. Also, the Department of Veterans Affairs Privacy Act Statement for surveying was attached at the top of the survey to reassure participants' of the measures of confidentiality.

The survey was developed from several resources to obtain important information and ascertain participants' perceptions of their perceived physical and psychological wellbeing after competing in the NVWG. Schwarzer & Jersualem (1993) provided a scale to determine participants' self-efficacy and Shrink (1998) developed a test to determine self-esteem. Also, survey questions from Price's (1983) study on Spinal Cord Injury and leisure satisfaction contained useful information regarding physical wellbeing.

High validity and reliability scores resulted on the self-efficacy and self-esteem. Based Cronbach's alpha, internal validity is .91. Although the self-efficacy test is said to be reliable, statistical information was not provided. The self-esteem scores ranging in the high .80 to high .90 revealed that Shrink's scale (1998) was high in validity and reliability.

Prior to the distribution of the survey, the Department of Veterans Affairs and the University of Tennessee's Statistical Computation Center reviewed the content and format of the survey. Modifications to the survey were completed to validate the survey questions to the research questions. The newly changes were examined by the Department of Veterans Affairs research centers and the Human Subjects Review Board before the survey was distributed to participants of the NVWG.

Procedures

During the development of the thesis proposal, the Director Recreation Therapy Service, and the Coordinator of the National Veteran Recreation Therapy Service was notified via electronic media and conference calls. A copy of the participant packet (i.e., survey and letter to the survey distributor) was released to Department of Veterans Affairs administrative office April 1999. In mid May 1999, approval of the survey was obtained and a packet was mailed to the Coordinator of the National Veterans Recreation Therapy Service. Enclosures included table tents, questionnaires, and a stamped mailing box. In addition to the research documents, an explanation letter (Appendix B) regarding the study, distribution, and collection procedure was enclosed to the survey distributor. Distribution of the questionnaires was from June 21 –July 28 at the on-site registration for the 1999 NVWG in Puerto Rico and the VA's Spinal Cord Injury (SCI) Centers.

Twenty-two SCI centers were contacted and willing to participate in the study. Seven of these were selected and surveys were mailed to those sites. The recreation therapists at each location handled distribution of the surveys. Enclosed in those packets were questionnaires and a letter to the survey distributor. Upon receiving the completed questionnaires from the survey distributor, evaluation of the data began early August. The time period was sufficient enough for obtaining, evaluating, and presenting the data.

Analysis of Data

Descriptive and analytic analysis were used for evaluation of the survey. The program used to analyze the data was the University of Tennessee's Statistical and Computational Consulting Center Services' SPSS (statistical package for social sciences). Pair t-tests, one way ANOVA, Tukey Post Hoc, and independent sample t-tests were used to decipher the gathered data. The mean percentage , p values, and frequencies of the results of the survey were analyzed.

The first research question asked: Does sports competition impact perceived physical wellbeing? This question contained 3 areas to develop supportive data of the research question. The first sub question, does sport competition/recreational activity influence perceived physical health, was supported by items such as a competitive sport develops my physical fitness, helps me remain healthy, and restored me physically. Questions 17, 18, and 19 of the survey emphasized sport competition influence on perceived physical health. The second sub question focused on the effects of sport competition/ recreational activity on veterans' rehabilitation. Question 2 reviewed the significance of recreational activity in rehabilitation. Subjective statements revealing the extensive participation and rehabilitation were supportive of this item. The final sub question regarding physical wellbeing and sport competition was supported by veterans' comments regarding opportunities to participate in chosen activities (instead of recommended rehabilitative activities), engage in challenging experiences, and take on new adventures were examined. Question 9 of the survey related to participants' perception on the increased opportunities after sport competition.

The second research question asked: Does sport competition impact perceived psychological wellbeing? This question builds on the psychological results of recreational or competitive sport participation. Questions 20-29 on the survey emphasized participants' perception of self-efficacy after sport competition. Questions 30-59 discussed personal self worth examined self-esteem levels.

Summary

Chapter three is an overview on how the study was conducted. The method for choosing the sample from the population was described. The rationale of the study format was stated. The procedures of how the study was completed were delineated. The analysis of the data explained the process of matching the results to each of the subquestion.

The process of the study was carefully completed. The University of Tennessee requirements as well as the Department of Veterans Affairs standards followed protocols for each step of the survey and distribution. The procedures were clearly identified to target the purpose of the study, The effects of sport competition on the perceived physical and psychological wellbeing of participants that competed in the National Veteran Wheelchair Games (NVWG).

CHAPTER FOUR

ANALYSIS OF DATA

The purpose of the review was to conduct an analysis of data collected for the Department of Veterans Affairs Recreation Therapy Service's National Veterans Wheelchair Games (NVWG). The study determined how the National Veterans Wheelchair Games affected disabled veteran athletes' perceived physical and psychological wellbeing. This chapter provides a description of the sports that were engaged during the event, as well as the NVWG participants' perceptions of themselves after competing in the games. Results from the survey are disclosed.

Sport Activities

The Department of Veterans Affairs coordinated several special events to benefit United States veterans. In Changing Lives (1999), The NVWG provided veterans the opportunity to "maximize their individual potential" through recreational sport competitions. The sport competition provided veterans with spinal cord injuries, amputations or certain neurological problems the chance to achieve a higher quality of life by participation in activities (i.e., scuba, slalom, motorized slalom, table tennis, weightlifting, bowling, swimming, motorized rally, track and field, softball, air guns, bill fishing, rugby, basketball, 9-Ball, archery, and 5K road race.

Survey Results

A total response of 51 usable questionnaires was recorded. Forty-nine men and two women completed and returned the survey. The survey consisted of five sections. Section one provided participants' general information regarding recreation programs and activities. Section two contained information that involved participants' perception of physical wellbeing. Section three composed of information regarding participants' perception of self-efficacy after sport competition. Section five comprised of participants' perception of self-esteem after sport competition. Each section was divided to clearly identify the relationship of the general information of participants and the research questions of the survey. Once the surveys were answered and tallied, a percentage was calculated in response to each question.

The first section of the survey included general information regarding veterans' participation in recreation. Question 1 involved veterans' perception of available recreation rehabilitation programs. The perceived recreation rehabilitation programs that were available to veterans resulted in 54.9% optional and limited, 33.3% optional but extensive, 9.8% mandatory but extensive and 2% none available (Table 4.1).

The NVWG have been held annually for 19 years. Survey responses indicated 15.7% of veterans participated in the games one-year, 43.1% of veterans participated in the games 2 to 3 years, and 41.2% participated in the games 4 or more years (Table 4.2). Among all the participants, each veteran participated in multi-events. Furthermore, after the NVWG, a majority of veterans engaged in physical activities that were similar to sports at the games.

TABLE 4.1. Perceived Availability of Recreation Rehabilitation Programs

Response	Frequency	Percent
None available	1	2.0
Optional and limited	28	54.9
Optional but extensive	17	33.3
Mandatory but extensive	5	9.8
TOTAL	51	100.0

Survey Question 1

TABLE 4.2 Number of Years Survey Respondents Participated in the National Veterans Wheelchair Games

# of Years Participated	Frequency	Percent
0 – 1	8	15.7
2 – 3	22	43.1
4 or more	21	41.2
TOTAL	51	100.0

Survey Question 3

The second section provided information on perceived physical health, increased range of activity, and benefits from physical activity. Questions 9, 17, 18, and 19 related to the first research question, "Does sport competition impact perceived physical wellbeing?". Questions 17, 18, and 19 emphasized sport competition influence on perceived physical health. Question 17 determined if competitive sports develop physical health. Responses concluded 11.8% - not at all true to hardly true, 15.7% - moderately true, and 72.5% exactly true. Question 18 determined if competitive sport maintains

health states. Results from participants were 9.8% - not at all true to hardly true, 15.7% - moderately true, and 74.5% exactly true. Question 19 determined if competitive sport restores physically. Participants answered 5.9% - not true to hardly true, 7.8 % moderately true, and 86.2% exactly true.

Question 9 revealed participants' perception on the increased range of activity due to sport competition. The participants answered question 9 as 4 % - not at all true to hardly true to more opportunities to try new things after sport competition, 27.5% - moderately true to try new things after sport competition, and 68.6% - exactly true to try new things after sport competition.

In addition to question 9, 17, 18, and 19, question 2 related to the first research question. Question 2 obtained information regarding the significance of participation in recreational activity and rehabilitation. Results indicated that 2% of NVWG participants perceived that recreation activity had little effect on rehabilitation, 19.6% of the participants felt it had moderate effect on rehabilitation, and 78.4% thought recreation activity had a lot of effect on rehabilitation (Table 4.3).

TABLE 4.3 Perceived Significance of Recreational Activities in Rehabilitation

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
A little	1	2.0	2.0	2.0
Moderately so	10	19.6	19.6	21.6
A lot	40	78.4	78.4	100.0
TOTAL	51	100.0	100.0	

Survey Question 2

Furthermore, the second section provided combined data of benefits resulting from physical activity (Figure 4.1). Results were calculated before injury and after sport competition. Mean benefits of physical activity before injury was 3.9 and the mean benefits of physical activity after competition was 4.6. These means were compared to determine the significant change between before injury and after sport competition. Comparison of the before injury and after sport competition results were analyzed by using a paired t-test ($t=-7.261$, $df=50$, $p<.001$) (Table 4.4).

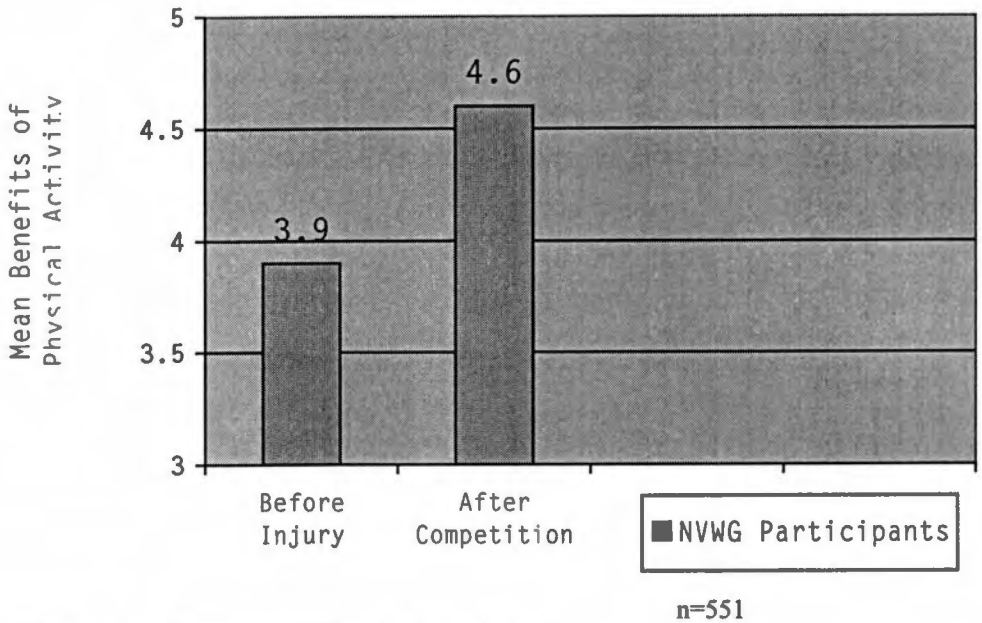

FIGURE 4.1 Benefits of Physical Activity

The third and fourth sections of the survey were related to the psychological wellbeing of participants of the NVWG. The third section related to the first sub question, "Were levels of self-efficacy positively effected after competing in the NVWG?" . Survey question 20-29 were instituted to determine participants'

TABLE 4.4 Results of a Paired Sample T-Test Measuring the Before Injury and After Sport Competition - Benefits of Physical Activity.

						95% Confidence Interval of the Diff.	
			Mean Difference (Aft.Comp. -Before Injury)	Std. Deviation	Std. Error Mean	Lower	Upper
Pair 1	Before Injury	After Competition	-.6456	.6349	.0889	.4670	.8241

			t	df	Sig. (2-tailed)
Pair 1	Before Injury	After Competition	.7261	50	<.001

Comparison score developed from Survey Question 7-19

Self-efficacy after competing in the NVWG. The ten questions had a 4-point scale: 1 – not all true, 2 – hardly true, 3 – moderately true, and 4 – exactly true. Participants' responses were recorded and resulted in a mean score of 3.4431 (Table 4.5).

The fourth section related to the second sub question, " Were levels of self-esteem positively effected after competing in the NVWG?" Survey questions 30-59 were established to determine participants' self-esteem after competing in the NVWG. The thirty questions were based on a 5- point scale: 1 – almost never, 2 – rarely, 3 – sometimes, 4 – quite often, 5 – most of the time. Participants' responses were recorded and resulted in a mean score of 3.9779 (Table 4.5).

Table 4.5 Perceived Levels of Self-Efficacy and Self-Esteem of the Survey Respondents After Sport Competition

	N	Minimum	Maximum	Mean	Std. Deviation
Efficacy	51	1.90	4.00	3.9779	.4328
Esteem	51	2.26	4.94	3.9779	.5534

Table based on survey questions 20-29 for Self-Efficacy and survey questions 30-59 for Self-Esteem

The fifth section of the survey was related to veterans' characteristics. Survey questions 60-68 provided general information regarding age, gender, education, present condition, rehabilitation center, mobility assistance, residence type, and annual income was analyzed (Table 4.6). Questions regarding age was compared to other age groups to determine psychological wellbeing. Due to very little to non-existent responses from <25 year old and 61+ years old participants, age groups were regrouped as <30 to 50+ years old. Three-participants represented the <25 age group and 4-participants represented the 25-30 age group. Likewise, there were no responses from veterans who were 61+ years old. Therefore, the 61-70 and 70+ does not appear in the data. In order to have a better representation of various age groups, those groups were combined to form the 30 or younger and 50+ age groups.

To determine what age levels were significantly different in self-efficacy and self-esteem, a one way ANOVA was used to determine if there were differences in mean self-efficacy and self-esteem by age group. No significant difference was found in self-efficacy among various age groups ($F(3,47=.863, p=.467)$ (Table 4.7). However, self-esteem among the self-esteem among different age groups resulted in a significant F ($F(3,47=2.857, p=.047)$ (Table 4.8).

TABLE 4.6 General Information Regarding Participants of the Survey

AGE	Frequency	Valid %
<25	3	5.9
25-30	4	7.8
31-40	17	33.3
41-50	20	39.2
51-60	7	13.7
TOTAL	51	100.0

TYPE OF MOBILITY ASSISTANCE	Frequency	Valid %
Electric Chair	6	11.8
Manual Chair	44	86.3
Walking w/ device	1	2.0
Walking w/o device	-	-
TOTAL	51	100.0

GENDER		
Male	49	96.1
Female	2	3.9
TOTAL	51	100.0

EDUCATION		
Elementary	3	5.9
High School	2	3.9
Vocational/ Technical	6	11.8
2 yr College	14	27.5
4 yr College	20	39.2
Master's or equivalent	5	9.8
Ph.D. or equivalent	1	2.0
TOTAL	51	100.0

RESIDE		
On your own	16	31.4
With your family	24	41.1
With a friend	6	11.8
In a hostel/care ctr	2	3.9
In a hospital care ctr	3	5.9
TOTAL	51	100.0

CURRENT ANNUAL INCOME		
Less than $10,000	8	15.7
$10,000 - $19,000	10	19.6
$20,000 - $29,000	4	7.8
$30,000 - $39,000	13	25.5
$40,000 - $49,000	10	19.6
$50,000 or more	6	11.8
TOTAL	51	100.0

ANNUAL INCOME PRIOR DISABILITY		
Less thatn $10,000	-	-
$10,000 - $19,000	7	13.7
$20,000 - $29,000	13	25.3
$30,000 - $39,000	18	35.3
$40,000 - $49,000	10	19.6
$50,000 or more	3	5.9
TOTAL	51	100.0

REHABILIATION CENTER		
Regional Spinal Injury Ctr	3	6.0
VA Spinal Injury Ctr	43	86.6
Community hospital	2	4.0
Other	2	4.0
Missing	1	
TOTAL	51	100.0

PRESENT CONDITION		
Paraplegic	21	41.2
Quadriplegic	26	53.1
Other	2	4.1
Missing	2	
TOTAL	51	100.0

TABLE 4.7 Self-Efficacy of Respondents by Age Group - ANOVA

	Sum of Squares	df	Mean of Square	F	Sig.
Between Groups	.489	3	.163	.863	.467
Within Groups	8.876	47	.189		
TOTAL	9.365	50			

Table based on survey questions 20-29

TABLE 4.8 Self-Esteem of Respondents by Age Groups – ANOVA

	Sum of Squares	df	Mean of Square	F	Sig.
Between Groups	2.362	3	.787	2.857	.047
Within Groups	12.953	47	.276		
TOTAL	15.314	50			

Table based on survey questions 30-59

A Tukey post hoc analysis was used to compare the significant difference in self-esteem between different age groups (Table 4.9). Since the data is close in between groups (p=.047), the Tukey enabled a comparison between each age group. A group mean for 30 or younger ($\bar{x}$ = 4.2), 31-40 ($\bar{x}$=4.1), 41-50 ($\bar{x}$=4.0), 50+ ($\bar{x}$=3.5) was run to depict the mean difference (Figure 4.2). Significant differences were found between 31-40 and 50+ (p=.049) age groups. Self-esteem score was significantly lower among the 50+ age group ($\bar{x}$=3.5) compared to 31-40 year olds ($\bar{x}$=4.1). Marginal differences were found between 50+ and 30 or younger (p=.068)age groups, and 50+ and 41-50 (p=097) age groups. No other differences were found.

TABLE 4.9 Significant Difference in Self-Esteem Among Age Groups - Tukey Post Hoc Tests

Age	Age	Significance
30 or younger	31-40	.986
	41-50	.894
	50+	.068*
31-40	30 or younger	.986
	41-50	.964
	50+	.049**
41-50	30 or younger	.894
	31-40	.964
	50+	.097*
50+	30 or younger	.068*
	31-40	.049**
	41-50	.097*

* p<.1
** p<.05

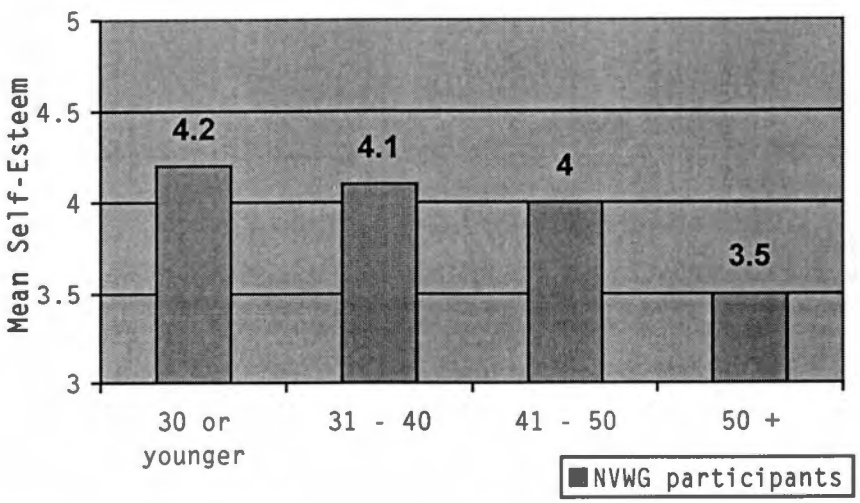

FIGURE 4.2 Comparison of Age Groups and Self-Esteem

Similar to age groups, another characteristic in section 5 was analyzed to determine psychological effects of sport competition. The data from question 63 was used to ascertain the significant difference of self-efficacy and self-esteem between present disabling conditions. Two independent sample t-test were run to determine the significance between veterans who are paraplegic and quadriplegic (Table 4.10). The self-efficacy t-test (t=-1.682, df=31.925, p=.102) and self-esteem t-test (t=-.595,df=45,p=.555) found no significant differences.

Table 4.10 Self-Efficacy and Self-Esteem of Paraplegic and Quadriplegic

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
EFFICACY	Equal variances assumed	-1.766	45	.084	-.2242
	Equal variances are not assumed	-1.682	31.925	.102	-.2242

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
ESTEEM	Equal variances assumed	-.595	45	.555	-9.8488E-02
	Equal variances are not assumed	-.565	30.899	.576	-9.8488E-02

Summary

In conclusion, data collection was clearly defined due to the set-up of the survey. The divisions provided a precise way to determine the meaningful sections. Eighty-four percent of veterans have competed in the games a multiple of times. Physical wellbeing was effected by sports competition i.e., increase developed health, maintained health, and restored physically. Self-efficacy and self-esteem mean scores determined a positive relationship with sport competition. A further understanding of the effects of sport competition were obtained by analyzing self-efficacy and self-esteem among the age groups and various disabilities. No significant differences between various age groups in self-esteem were found. On the other hand, 50+ participants had a significant difference in self-esteem with the 31-40 age group. In regards to self-efficacy and self-esteem between different disabilities, there were no significant differences. Answers to questions, does sports competition impact perceived physical wellbeing and does sport competition impact perceived psychological wellbeing are uncovered.

CHAPTER FIVE

SUMMARY AND CONCLUSIONS

The purpose of the study is to determine the effects of sport competition on the perceived physical and psychological wellbeing of participants in the National Veterans Wheelchair Games (NVWG). The Department of Veterans Affairs Recreation Therapy Service had a strong interest on the analysis of data collected on one of their sport programs.

This chapter will examine the data that was obtained from participants of the NVWG. Conclusions of the research questions will determine if the Department of Veterans Affairs Recreation Therapy Services' programs are developed to meet program goals as well as veterans' needs. Also, these results will be helpful for future recommendations of program development and research.

Research Questions and Recommendations

Conclusions and recommendations were attainable through the research questions and sub questions. Answers to these questions provided the foundation of which the study originally set out to prove. The results are supportive of veterans' perceptions of physical and psychological benefits through sport competition.

In order to obtain an understanding of the research questions, general information regarding veterans' participation in recreation was examined. Of the NVWG participants, half – 54.9% stated that rehabilitation programs were optional and limited. Rehabilitative programs should be available to meet the needs of their patrons. The availability of programs may be an influential factor in participating in recreational

therapy programs. In addition to the availability of recreation rehabilitative programs, the number of years may effect veterans' perceptions of physical and psychological wellbeing and sport competition. Of the 51 participants of the NVWG, 84.4% returned to the games for more than one time. Although this study was beyond the scope of the study, the high percentage of respondents who continued to participate in the NVWG suggests perceived physiological and psychological benefits received from participation the games.

Research Question #1 – Does sport competition impact perceived physical wellbeing? Results of the surveys indicated that veterans' involvement in sport competition/recreational activity enhanced their physical selves. Regarding the development of physical fitness by participating in competitive sports, 72.5% of veterans responded exactly true. Similarly, 74.5% of veterans agreed that competitive sports help maintain levels of health. Also, 86.2% veterans concluded that through competitive sports, physical fitness was recharged. High positive responses and percentages represented veterans' discernment of the physical self.

Moreover, involvement in sport competition increased the range of activity. More than half of the participants responded with a 68% perceived positive outcome in the involvement of sport competition and recreational activity. With the perception of attaining physical wellbeing, veterans engaged in more activities. Between the time of before injury and after competition, veterans recorded the increased experience of new sports and activities. A possible conclusion could be that as the perception of the physical self was strengthened, veterans were less intimidated to participate in new physical activities. A quote in Rasmussen's article (1999) stated, "It's an incredible

feeling to do things that I thought I'd never be able to do when I was first in a wheelchair."

Physical activity, as part of the rehabilitative process was high among veterans. Seventy-eight percent reported the significance of recreational activity and rehabilitation. Similarly, sport competition had an overall impact among veterans before injury and after competition. The significant paired t-test that was found on veterans pre-injury and post-competition ($t=-7.261$, $df=50$, $p<.001$) indicated that the effects of sport competition/recreational activity are beneficial to the overall wellbeing.

Recreation therapy programs have proven beneficial to veterans (Carmichael, 1999). The NVWG had a positive impact on participants' perceptions of themselves after sport competition. The Department of Veterans Affairs Recreation Therapy Service provides programs are vital to the enhancement and maintenance of the physical being. Brown (1999) stated in the 1999 Changing Lives brochure that programs such as the NVWG are vital to veterans to "become active and realize potentials they have thought they had lost". These programs are successful and necessary for the achievement of physical wellbeing.

Research Question #2 – Does sport competition impact perceived psychological wellbeing? The study indicated that veterans' involvement in sport competition enhanced their psychological wellbeing. Survey questions regarding self-efficacy and self-esteem revealed a positive trend to the benefits of sport competition and psychological wellbeing. Self-efficacy among veterans resulted in a mean score of 3.4431. Based on a 4-point scale which 3 represents moderately true and 4 represents exactly true indicating a moderately high perceived self-efficacy could be made.

Unfortunately, a pre-competition data collection was not gathered to compare an increase in self-efficacy due to sport competition. Similarly, self-esteem among participants of the NVWG resulted in a high positive response to competitive sports and high self-esteem. The mean score of 3.9779 represented responses of most of the time to positive self-esteem questions. Competitive sports challenged veterans to overcome their views of disability. Veterans were able to make decisions, find answers, and act independently.

To further evaluate the benefits of sport competition and psychological wellbeing, comparisons among age groups and present conditions were examined. One way ANOVA were used to determine if mean levels of self-efficacy and self-esteem differed among the various age groups. ANOVA results for self-efficacy ($F(3,47=.863, p=.467$) suggested a no significant difference among age groups after sport competition. Therefore, at any given age group, levels of self-efficacy are similar to other veterans' benefits of sport competition.

Unlike the comparisons of self-efficacy, age groups and self-esteem do have a significant difference. ANOVA results for self-esteem ($F(3,47=2.857, p=.047$) suggested a significant difference between age groups. Since F was significant, a Tukey post hoc analysis was used to compare each age group for the significant difference of self-esteem. Of the age groups, significant difference was found only between 31-40 year olds and 50+ year olds ($\bar{x}=3.5$). A possible reason for this is the sample size. Also, due to size of sample, comparisons between 30 or younger (n=7) and 50+ (n=7) appear to have no significant difference. The two groups with the same small sample size were difficult to find significant differences. However, if the 50+ had more participants

representing that age group, a possible significant difference in self-esteem might have been found.

In addition, no differences in self-esteem between the 30 or younger, 31-40, and 41-50 age groups occurred. All self-esteem levels at those age groups appear to be similar. During comparison between 50+ and other age groups, marginal differences were found. This means, by definition (.1>.05), that there was a slight possible difference in self-esteem. However, the sample size could not determine this. If a larger sample size had been obtained, a significant difference may possibly occur.

In review of the overall data regarding age and self-esteem, the mean data can be used to make additional analysis. The statistical means of each age groups, 30 or younger $\bar{x}$=4.2, 31-40 $\bar{x}$=4.1, 41-50 m$\bar{x}$=4.0, and 50+ $\bar{x}$=3.5 could possibly mean a gradual decrease in self-esteem during the aging process. Although there is a slight increase in self-esteem between the 30 or younger and 41-50 age groups, a downward trend may be seen if more data was available for individuals 50+.

Unlike the comparison of age groups, present disabling conditions in relation to psychological benefits were studied by using an independent sample t-test. Data concluded that the same level of self-efficacy and self-esteem was found between paraplegics and quadriplegics. Little to no data was available on participants with other disabling conditions. The independent sample determined that the self-efficacy (t=-1.682, df=31.925, p=.102) and self-esteem t-test (t=-.595, df=45, p=.555) showed no significant difference. Therefore, it can be stated that regardless of disability, the same level of self-efficacy can be influenced by sport competition/recreational activity. Present disabling conditions does not impact current self-esteem levels.

Results were supportive of sport competition's effect on psychological wellbeing. Increased self-confidence and sense of accomplishment in veterans after sport competition were conclusive. However, the lack of data regarding pre-injury information is not available to determine the significant changes. Nevertheless, participation in sport competition created and reanimated the self-esteem of several veterans. As one NVWG participant stated in reference to the games, "it's helped me in my everyday life...it's boosted my self-esteem. It's given me a new sense of purpose" (Rasmussen, 1998). Perez (1999) quoted another veteran's perception on the benefits of the games, "My self-esteem is better, my strength is better...I have my competitive edge back."

Summary

In order to comprehend the research results, clear statements of the results are defined. Research Question #1 -Does sport competition impact perceived physical wellbeing? Data concluded that physical wellbeing is effected by sport competition. Participants of the NVWG stated that physical fitness developed, health was maintained, and physical fitness was recharged. Also, more activities were being engaged after the NVWG. As part of the rehabilitative process, veterans reported the significance of recreational activity and rehabilitation.

Research Question #2 – Does sport competition impact perceived psychological wellbeing? Data results indicated that psychological wellbeing is effected by sport competition. Veterans' self-efficacy and self-esteem were moderately high. Competitive sports challenged veterans to overcome their views of disability. During the comparison of age groups and self-efficacy levels, the data revealed that at any given age group,

levels of self-efficacy are similar to other veterans' benefits of sport competition. On the other hand, self-esteem levels had a significant difference among the 31-40 and 50+ age groups. In comparing present disabling condition and self-efficacy and self-esteem, the same level of self-efficacy and self-esteem can be influenced by sport competition/recreational activity.

Suggestion for Future Research

The study provided a generalization of veterans' participation in the games and perceptions of themselves. Several characteristics could be examined to the effects of sport competition on the physiological and psychological wellbeing. For example, female veterans were hardly represented in the study. This study can be targeted to females and the benefits of sport competition. Another interesting topic that can be studied would be the possible decrease of self-esteem with increasing age. Furthermore, data regarding the annual income prior disability and current income indicated a change in salary. Data concluded that there was an increase of people falling into the earnings' bracket < $10,000 after disability. Also, there was an increase among the income bracket of $50,000 or more after disability. A study regarding the effects of higher salaries on individual's self-esteem could be examined. In addition, a further study on the disability benefits or job transitions after disability could be a valuable project. Finally, a control group for before injury and after competition on self-efficacy and self-esteem would be useful in the study to determine the significant changes in sport competition/recreational activity due to injury. Similarly, a before competition and after competition study on

individuals with disabilities would create an in-depth look at the physical and psychological benefits and sport competition.

In reference to this study, changes in methods would be needed for future results in the impact of sports competition on veterans' physical and psychological wellbeing. First, the surveys should not be distributed at a registration site. Participants of the study were more involved with registration procedures rather than the survey. Secondly, the survey should be administered by person(s) directly involved in the study. When asked by a participant of the study, a person directly involved in the study would be better prepared for handling questions and explanations of the survey. Finally, the institution i.e., Department of Veterans Affairs involved in the study should be accessible at all times. If the parties involved in the study were within the same area, communication between the institution and administer of the study could be more efficient and expedient.

In conclusion, studies on sport competition and the physiological and psychological wellbeing are vital to the enhancement of quality of life. Programs such as the NVWG need to continue enhancing, creating, and evaluating therapeutic recreation events. Although issues on physical activity tend to correlate with a better physical and psychological wellbeing, more research needs to take a look at factors i.e., gender, age, before and after injury, and before and after competition to have valuable data in the quest for benefits of sport competition. In the Changes in Life brochure, Carmichael (1999) stated that the Department of Veterans Affairs Recreation Therapy Program Services should ..."inspire veterans to seek out the challenge of competition and recreational activities...the programs demonstrate the positive results of recreation

therapy – like improvements with the quality of life. Above all, each of the events demonstrate VA's heartfelt commitment to quality care for America's veterans".

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Appendices

APPENDIX A

National Veterans Wheelchair Games 1999

Benefits of Sport Competition
A Survey

PRIVACY ACT STATEMENT

The information requested on this survey is solicited under authority of Executive Order 12862, entitled Setting Customer Service Standards. It is being collected to assist the National Veterans Recreation Therapy Programs (NVRTP) to learn more about what customers think of the (NVRTP) and the impact of the participation in the national programs on their rehabilitation in VA medical facilities. This survey is the result of Executive Order 12862 which requires each federal agency to identify and survey customers, develop post customer service standards, measure results against those standards, and publish a customer service plan that can be readily understood by their customers. The information you supply will be confidential and protected by the provisions of the Privacy Act of 1974 (5 U.S.C. 552a). Releases of information may only be made with your consent or as identified in a routine use of the system of records. Routine uses include releases of statistical data and non-identifying data for research and associated administrative purposes. Disclosure is voluntary, failure to furnish the requested information will have no adverse effect on any other VA benefit to which you may be entitled.

Please answer each of the following questions either by circling the appropriate numbers or by writing your response on the lines provided. Thank you. Your help is appreciated.

1. Which of the following best describes the recreation program offered by your rehabilitation center?

   none available.....1
   optional and limited.....2
   optional but extensive.....3
   mandatory but limited.....4
   mandatory but extensive.....5

2. How significant was participation in recreational activity to your own rehabilitation?

   not at all.....1
   a little.....2
   moderately so.....3
   a lot.....4

3. How many years have you participated in the National Veteran Wheelchair Games (NVWG)?

   0 – 1.....1
   2 – 3.....2
   4 – more.....3

4. What activity(-ies) did you participate in during the NVWG?

   _____
   _____
   _____
   _____

5. Please indicate the most enjoyable activities or recreational pastimes in which you participated prior to your disability?

   _____
   _____
   _____
   _____

6. Please indicate the most enjoyable activities or recreational pastimes in which you now are participating?

   _____
   _____
   _____
   _____

1

THIS SECTION WILL INVOLVE BEFORE INJURY AND AFTER SPORT COMPETITION EXPERIENCE.

Please read each statement in section two and circle one number from each set of four according to the following guidelines: Circle.....1 – Not at all true 2 – Hardly true 3 – Moderately true 4 – Exactly true

QUESTION	BEFORE INJURY					AFTER SPORT COMPETION				
7. Competitive sports gives me self-confidence	1	2	3	4	5	1	2	3	4	5
8. Competitive sports gives me a sense of accomplishment	1	2	3	4	5	1	2	3	4	5
9. Competitive sports provides me with opportunities to try new things	1	2	3	4	5	1	2	3	4	5
10. Competitive sports helps me learn about other people	1	2	3	4	5	1	2	3	4	5
11. I have social interaction with others through, competitive sports	1	2	3	4	5	1	2	3	4	5
12. Participation in competitive sports helped me to relax	1	2	3	4	5	1	2	3	4	5
13. Participation in competitive sport helps me relieve stress	1	2	3	4	5	1	2	3	4	5
14. Participation in competitive sports contribute to my emotional wellbeing	1	2	3	4	5	1	2	3	4	5
15. I engage in sports because I simply like doing them.	1	2	3	4	5	1	2	3	4	5
16. Participating in sports is was intimidating	1	2	3	4	5	1	2	3	4	5
17. Competitive sports develops my physical fitness	1	2	3	4	5	1	2	3	4	5
18. Competitive sports help me to remain healthy.	1	2	3	4	5	1	2	3	4	5
19. Competitive sports restored me physically	1	2	3	4	5	1	2	3	4	5

FOR THIS SECTION PLEASE CIRCLE ONE BEST DESCRIBES YOUR FEELINGS:

	Not All True	Hardly True	Moderately True	Exactly True
20. I can always manage to solve difficult problems if I try enough.....	1	2	3	4
21. If someone opposes me, I can find means to get what I want.	1	2	3	4
22. It is easy for me to stick to my aims and accomplish my goals.	1	2	3	4
23. I am confident that I could deal with unexpected events.....	1	2	3	4
24. Thanks to my resourcefulness, I know how to handle unforseen situations.	1	2	3	4

	Not All True	Hardly True	Moderately True	Exactly True
25. I can solve most problems if I invest the necessary effort.....	1	2	3	4
26. I can remain calm when facing difficulties because I can rely on my coping abilities.....	1	2	3	4
27. When I am confronted with a problem, I can usually find several solutions.....	1	2	3	4
28 If I am in trouble, I can usually think of something to do.....	1	2	3	4
29. No matter what comes my way, I am usually able to handle it.....	1	2	3	4

	Almost Never	Rarely	Sometimes	Quite Often	Most of the Time
30. In social situations, I have something interesting to say.....	1	2	3	4	5
31. Most people around me seem to be better off than I am.....	1	2	3	4	5
32. I like being myself and accept myself the way I am.....	1	2	3	4	5

FOR THIS SECTION PLEASE CIRCLE ONE BEST DESCRIBES YOUR FEELINGS:

	Almost Never	Rarely	Sometimes	Quite Often	Most of the Time
33. I mess up everything I touch.....	1	2	3	4	5
34. When I see a good opportunity, I recognize and seize it.....	1	2	3	4	5
35. People respect and like only those who are good looking, smart, witty, talented or rich.....	1	2	3	4	5

	Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
36. To me, success is not imperative. The important thing is to try and do my best.....	1	2	3	4	5
37. I deserve to be loved and respected.....	1	2	3	4	5
38. Unlike others, I really have to go out of my way to make and keep a friend.....	1	2	3	4	5
39. If someone ever falls in love with me, better do my best to prove worthy, because it may never happen to me again.....	1	2	3	4	5
40. Being myself is a guarantee that people will dislike me.....	1	2	3	4	5
41. I am not sure I have done a good job unless someone points it out.....	1	2	3	4	5

	Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
42. I am afraid of being rejected by my friends.....	1	2	3	4	5
43. If I don't do as well as others, it means that I am an inferior person.....	1	2	3	4	5
44. I could disappear from the surface of the earth, and nobody would notice.	1	2	3	4	5
45. A partial failure is as bad as a complete failure....	1	2	3	4	5
46. In case of need, I know people who care enough about me to offer their help.	1	2	3	4	5
47. I feel worthless and futile.....	1	2	3	4	5

FOR THIS SECTION PLEASE CIRCLE ONE BEST DESCRIBES YOUR FEELINGS:

	Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
48. I feel I can make mistakes without losing the love or respect of others.	1	2	3	4	5
49. I let those who care about me down.	1	2	3	4	5
50. If I can't do something well, there is not point in doing it all.	1	2	3	4	5
51. I will never amount to anything significant.	1	2	3	4	5
52. I don't need other people's approval in order to be happy and satisfied with myself.	1	2	3	4	5
53. I have what it takes to socialize with other people.	1	2	3	4	5

	Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
54. I think I am a failure.	1	2	3	4	5
55. Someone that stands up to me or disagrees with me may still very well like and respect me.	1	2	3	4	5
56. By ignoring a problem, you can make it go away.	1	2	3	4	5
57. I see myself as someone special and worthy other people's attention and affection.	1	2	3	4	5
58. How I feel about myself is more important than other's opinion of me.	1	2	3	4	5
59. I will never be capable as I should be.	1	2	3	4	5

GENERAL INFORMATION: Please circle your response.

60. How old are you?

<25 1
25-30 2
31-40 3
41-50 4
51-60 5
61-70 6
71+ 7

GENERAL INFORMATION: Please circle your response.

61. Are you male or female?	Male	1
	Female	2
62. What is the highest level of school or College education you have completed?	None	1
	Elementary school	2
	High school	3
	Vocational/technical training	4
	2 year college	5
	4 year college	6
	Master's or equivalent	7
	Ph.D. or equivalent	8
63. Which of the following best describes your present condition?	Paraplegic	1
	Quadriplegic	2
	Other (specify)	3

64. Which of the following best describes the rehabilitation center you attended? (Even if you attended more than one center, Please circle just one number to indicate the center which you consider your primary rehabilitation center).

	Regional spinal injury center	1
	VA spinal injury center	2
	Community hospital	3
	Other (specify)	4
65. How do you usually get around?	Electric wheelchair	1
	Manual wheelchair	2
	Walking with device	3
	Walking without device	4
66. Where do you live?	On your own	1
	With your family	2
	With a friend	3
	In a hostel/care center	4
	In a hospital/rehab center	5
	Other (specify) _____	6
67. What was your annual income before you were disabled?	less than $10,000	1
	$10,000 - $19,999	2
	$20,000 - $29,999	3
	$30,000 - $39,999	4
	$40,000 - $49,000	5
	$50,000 or more	6
68. What is your current annual income?	less than $10,000	1
	$10,000 - $19,999	2
	$20,000 - $29,999	3
	$30,000 - $39,999	4
	$40,000 - $49,000	5
	$50,000 or more	6

Once again, Thank You for your cooperation. Your assistance is very much appreciated.

Please return the completed questionnaire to the site distributor at the registration booth. If you would like to receive a summary of the results of this survey, please feel free to write, care of:

Pearl L. Ocampo
25 Longstaff St.
Jacksonville, NC 28540

APPENDIX B

National Veterans Wheelchair Games 1999

Benefits of Sport Competition
A Survey

July 9, 1999

Dear _____,

THANK YOU so much for serving as the survey coordinator for this study on the National Veterans Wheelchair Games! Please take a minute and review the contents of this package before the Sports Fitness Expo on-site registration.

Contents include: Table Tent (advertise the survey) and Survey/Questionnaire

Please follow the guidelines to ensure that participants' responses are remained confidential and collected efficiently.

- Participants of the study should only be **individuals that competed or will be competing in the NVWG.**
- Each participant should **obtain a questionnaire.**
- Instruct the participants to complete the forms and **return the information to you as soon as possible.**
- **Mail** the forms in the enclosed box **by July 23, 1999.**

Return to:

Pearl L. Ocampo
3700 Sutherland H-11
Knoxville, TN 37917

Please call me at (910) 347-6398 (May 31st – July 4th) or 423/946-4902 (after July 5th) if you have any questions! Again, **THANK YOU** for your assistance.

Sincerely,

Pearl O. Conroy

Enclosures

VITA

Pearl Ocampo Conroy was born in Oakland, California on April 23, 1970. She attended schools in the Pensacola, Florida, Escambia School System. She received her Associate of Arts degree from the Pensacola Junior College and continued her education at the University of West Florida. While continuing her pursuit of a Bachelor of Science Degree in Health, Leisure, and Sports, her emphasis in Sport Sciences influenced her professional experience in personal training and recreation management. In May 1997, she completed her undergraduate degree and entered the Master of Science program in Recreation, Tourism and Management at the University of Tennessee, Knoxville. Working with programs involving special populations such as Camp Koinonia, Camp Katepillar, and Project RISE (Rehabilitation in Special Education) enhanced her interests in Therapy Recreation. The combined interest of sports and recreation therapy introduced her to wheelchair sports. She completed her degree in December of 1999.