

**The Sport Commitment Model: Commitment and Outcome Behaviours
of Age-group Triathletes**

By

Lina Augaitis

B.S.C., B.P.H.E. Queen's University, 2003

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF**

MASTER OF ARTS

In

**THE FACULTY OF GRADUATE STUDIES
(HUMAN KINETICS)**

September 2005

© Lina Augaitis, 2005

ABSTRACT

The purpose of this study was to understand the factors that predict commitment for adults in the sport of triathlon using a conceptual model of commitment. Secondary purposes were to examine whether levels of commitment predict training behaviours (number of hours of practice per week) and to evaluate and compare two variations of the Sport Commitment Model.

One hundred and forty-four (males: $n=69$; females: $n=75$) age group triathletes were recruited at local triathlon races, expos, and club practices and volunteered to participate in the study. Participants received pre-stamped and pre-addressed envelopes with the questionnaire pack to fill out at their convenience.

Two statistical models were tested, a direct effects model and a mediational model (Weiss et al., 2001). The direct effect model predicted that sport commitment would be positively correlated to enjoyment, social support, personal investments, involvement opportunities, and negatively correlated to involvement alternatives and social constraints. The mediational model predicted enjoyment to mediate the effects of the other five variables on sport commitment. Sport commitment was also examined as a positive predictor of actual behaviour.

Regression analyses did not provide support for the mediational model with the total sample or in separate models for females and males. Support for the direct effects model was observed. With the total sample, the results showed that sport enjoyment ($\beta = .16$), personal investments ($\beta = .27$), involvement opportunities ($\beta = .26$) and alternative ($\beta = -.38$) were significant ($p < .05$) independent predictors of sport commitment, accounting for 57% of the variance. Gender differences emerged from the analyses. For

males, enjoyment ($\beta = .25$), opportunities ($\beta = .24$), attractive alternatives ($\beta = -.27$) and investments ($\beta = .28$) predicted 56% of sport commitment variance. For females, only opportunities ($\beta = .31$), attractive alternatives ($\beta = -.48$) and investments ($\beta = .23$) were significant predictors predicting 62% of sport commitment variance. For males ($\beta = .64$) and females ($\beta = .46$), investment was the only predictor of training behaviour. Sport commitment was a weak significant predictor of training behaviour in all models except for the non-significance found for the female only model. Important findings include the lack of evidence for a mediational model, evidence for the direct effect model for key predictors, evidence for gender differences in the model, and a weak link between commitment and training behaviour.

TABLE OF CONTENTS

ABSTRACT.....	ii
TABLE OF CONTENTS.....	iv
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
LIST OF APPENDICES.....	x
ACKNOWLEDGEMENTS.....	xi
CHAPTER 1.....	1
1.1 INTRODUCTION.....	1
1.2 REVIEW OF LITERATURE.....	3
1.2.1 Commitment.....	3
1.2.1.1 Investment Model.....	4
1.2.1.2 Interdependence Theory.....	5
1.2.1.3 Social Exchange Theory.....	6
1.2.2 Sport Commitment Model.....	7
1.2.2.1 The Development of the Sport Commitment Model.....	7
1.2.2.2 Testing the reliability and validity of the Sport Commitment Model	8
1.2.3 Antecedants of Sport Commitment Model: Relevance to Sport Research.....	10
1.2.3.1 Sport Enjoyment.....	11
1.2.3.2 Involvement Alternatives.....	13
1.2.3.3 Personal Investments.....	14
1.2.3.4 Social Constraints.....	15

1.2.3.5 Involvement Opportunities.....	16
1.2.3.6 Social Support.....	17
1.2.3.7 Other Potential Constructs.....	18
1.2.3.8 Mediation Model of Sport Commitment.....	20
1.2.4 Proposed Model of Sport Commitment: Adult Athletes in Individual Sports.....	21
1.2.5 Summary of Literature Review.....	24
1.3 STATEMENT OF THE PURPOSE AND HYPOTHESES.....	25
1.3.1 Research Question.....	25
1.3.2 Primary Hypotheses.....	26
1.3.2.1 Secondary Hypotheses.....	26
CHAPTER 2.....	27
2.1 METHODS.....	27
2.1.1 Participants.....	27
2.1.1.1 Determining Sample Size.....	27
2.1.1.2 Description of Participants.....	27
2.1.2 Measures.....	28
2.1.2.1 Basic Demographics, Training and Racing Experience...28	
2.1.2.2 Sport Commitment Variables.....	29
2.1.2.2.1 Sport Commitment.....	29
2.1.2.2.2 Enjoyment.....	30
2.1.2.2.3 Personal Investments.....	30
2.1.2.2.4 Social Constraints.....	31

2.1.2.2.5 Involvement Opportunities.....	31
2.1.2.2.6 Involvement Alternatives.....	32
2.1.2.2.7 Social Support.....	32
2.1.3 Procedures.....	33
2.1.4 Data Analysis.....	35
CHAPTER 3.....	37
3.1 RESULTS.....	37
3.1.1 Scale Reliabilities.....	37
3.1.2 Descriptive Statistics and Correlations.....	37
3.1.3 Testing the Hypotheses.....	39
3.1.3.1 Sport Commitment/Predictor Variables Relationship.....	39
3.1.3.2 Sport Commitment/Actual Behaviour Relationship.....	40
3.1.3.3 Enjoyment as A Mediator.....	40
3.1.3.4 Gender: Sport Commitment/Predictor Variables Relationship.....	43
3.1.3.5 Gender: Sport Commitment/Behaviour Relationship.....	45
3.1.3.6 Gender: Behaviour/Predictors Relationship.....	46
3.1.3.7 Gender: Enjoyment as A Mediator.....	46
CHAPTER 4.....	51
4.1 DISCUSSION.....	51
4.1.2 The Sport Commitment Model.....	52
4.1.3 Enjoyment and Sport Commitment.....	54
4.1.4 Mediational Sport Commitment Model.....	57

4.1.5 Behaviour and Sport Commitment.....	57
4.1.6 Gender Differences.....	58
4.2 LIMITATIONS.....	59
4.3 FUTURE DIRECTIONS.....	62
4.4 CONCLUSION.....	64
REFERENCES.....	65
APPENDIX.....	72

LIST OF TABLES

Table 1	Biographic Information Subdivided by Gender	28
Table 2	Means and Standard Deviations for Sport Commitment and Behaviour.....	38
Table 3	Pearson correlations between Sport Commitment, Behaviour, Sport Enjoyment, Alternative, Opportunities, Investments, Social Support and Social Constraints.....	38
Table 4	Means and Standard Deviations for Gender Separated Sport Commitment and Behaviour.....	43

LIST OF FIGURES

Figure 1	Original Sport Commitment Model (Scanlan, et al., 1993) with the addition of social support (Carpenter, 1993).	8
Figure 2	Mediational Model of Sport Commitment (Weiss et al., 2001).....	21
Figure 3	Revised Sport Commitment Model (Scanlan et al., 1993).....	22
Figure 4	Revised Mediational Model of Sport Commitment (Weiss et al., 2001).	22
Figure 5	Multiple Regression Analysis of Enjoyment, Alternatives, Opportunities, Social Constraints, Social Support and Investments for Prediction of Commitment	40
Figure 6	STEP 1: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator	41
Figure 7	STEP 2: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator.....	41
Figure 8	STEP 3: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator.....	42
Figure 9	STEP 4: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator.....	42
Figure 10	FEMALE: Multiple Regression Analysis of Enjoyment, Alternatives, Opportunities, Social Constraints, Social Support and Investments for Prediction of Commitment.....	44
Figure 11	MALE: Multiple Regression Analysis of Enjoyment, Alternatives, Opportunities, Social Constraints, Social Support and Investments for Prediction of Commitment.....	45
Figure 12	STEP 1: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator Separately for Females and Males	48
Figure 13	STEP 2: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator Separately for Females and Males	48
Figure 14	STEP 3: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator Separately for Females and Males	49
Figure 15	STEP 4: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator Separately for Females and Males	50

LIST OF APPENDIX

APPENDIX A	PART I Demographics.....	73
APPENDIX B	PART II Sport Experience and Training.....	75
APPENDIX C	PART III Sport Commitment.....	79
APPENDIX D	Cover Letter.....	88
APPENDIX E	Removed Items from Original Questionnaire.....	92

ACKNOWLEDGEMENTS

I would like to thank my advisor, Dr. Peter Crocker for his guidance, help and encouragement towards the completion of this thesis. Thanks to the members of my committee, Dr. Shannon Bredin and Dr. Nicola Hodges for taking the time out of their busy schedules for all of their positive suggestions, input, advice and support throughout this project. I don't know if I could have made it through without the helpful hints, positive encouragement, time, effort and friendships of the students in the lab: Catherine Sabiston, Meghan McDonough, Valerie Hadd, Whitney Sedgwick, Subha Ramanathan, and Pasha Bains.

To my parents, family, and friends: thanks for your patience, support, love and belief in my capabilities. Each one of you has touched me in a special way that will be cherished forever. Special mention to Sarah- Jane Lusina for being a fabulous roommate, friend and inspiration in all aspects of life.

Thank you to all who took the time and effort to fill out my questionnaire, I could not have done it without each and every one of you.

“Life is about feeling someone pushing from behind and realizing that it's you”

“Ability is what you are capable of doing. Motivation determines what you do. Attitude determines how well you do it”

“the miracle isn't that I finished but it's that I had the courage to start”

Dedicated to my Mother.

CHAPTER 1

1.1 INTRODUCTION

Sport commitment has been identified as “the psychological state representing the desire or resolve to continue sport participation” (Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993, p. 6). Sport psychologists often seek to identify and investigate the key factors necessary for athletes to maintain high levels of sport commitment to achieve athletic success. High levels of sport commitment are required to continue in sport, to spend countless hours training, to overcome a variety of challenging obstacles, to invest in choices and to make sacrifices that will generate positive outcomes.

Scanlan and colleagues’ Sport Commitment Model provides a conceptual perspective to evaluate an individual’s level of sport commitment. Specifically, the model has been used to describe and identify factors that predict levels of sport commitment in athletes (Scanlan, Carpenter et al., 1993). These factors include social constraints, personal investment, involvement opportunities, attractive alternatives, enjoyment and social support (Carpenter & Coleman, 1998; Scanlan, Carpenter et al., 1993). These factors will be explained in greater detail in following sections. There is general support for the original model of sport commitment in various team and individual sports (Carpenter & Coleman, 1998; Carpenter, Scanlan, Simons, & Lobel, 1993; Carpenter & Scanlan, 1998; Scanlan, Simons, Carpenter, Schmidt, & Keeler, 1993; Scanlan, Carpenter et al., 1993; Scanlan, Russell, Beals, & Scanlan 2003). However endurance sports have not been examined.

The recent past has seen a burst in popularity in endurance sports, especially in the sport of triathlon. However, there has been no investigation of the Sport Commitment Model in endurance (aerobic) sports such as triathlon. Originating in the early 1970's, triathlon (swim, bike, run) has seen an increased growth and popularity among individuals of range of ages and levels of expertise. In the 1980's, following the rise of the Ironman race (3.8 km swim, 180 km cycle, 42.2 km run), events developed into set race distances known as sprint, Olympic, half Ironman and Ironman so individuals of all abilities had the opportunity to participate. The advancement of the sport has culminated to its inclusion in the 2000 Olympic Games in Sydney, Australia (Baker & Sedgwick, 2005). Despite the rise in interest and engagement in triathlons, there is little information available to athletes who wish to improve in the sport, and limited research studies focused on triathlon athletes (Baker & Sedgwick, 2005). Given this small amount of research and resources specific to triathlons, there is a need for more advancement and understanding of psychological factors involved in triathlons. Of specific interest are the commitment characteristics of these athletes.

The general purpose of this investigation is to examine commitment in adult triathlon athletes. There are three main objectives concerning commitment involved in this study. The first objective of this study is to understand the factors that predict commitment for adults in the sport of triathlon using a conceptual model of commitment (Scanlan, Carpenter et al., 1993; Carpenter, 1993). The second objective is to examine whether levels of commitment predict behaviour (frequency and duration of training). The third objective is to evaluate and compare two related models of sport commitment (Weiss, Kimmel, & Smith, 2001).

1.2 REVIEW OF LITERATURE

Commitment to sport is a common characteristic shared by active participants. The level of commitment will determine the different sacrifices they might make, such as missing social events with family and friends, postponing certain educational and career plans and traveling away from home to train and compete. Commitment can lead to an individual persisting through barriers and in the face of failure. Sport psychology researchers are interested in identifying specific factors that predict commitment in sport. The identification of such factors would allow a better understanding of the motivation for participation and persistence in sport. The following section will review some of the conceptualizations related to sport commitment, as well as outline sport commitment in triathletes. This will provide a conceptual framework from which to view the development of the Scanlan, Carpenter et al (1993) model of sport commitment.

1.2.1 Commitment

Commitment has been variously defined as: (i) the stability of involvement and the degree of psychological attachment, which is determined by satisfaction, alternatives, and investment (Carpenter & Coleman, 1998; Rusbult, 1980a); (ii) conditions that help explain a person's persistent course of action (Becker, 1960); and (iii) the stability and persistence of relationships (Kelley, 1983). Although commitment research was founded in occupational and social relationship studies, Scanlan and colleagues sought to understand commitment as it relates to sport and physical activity, with sport commitment referring to the "reflection of factors supporting persistence in a course of action-even in the face of adversity" (Scanlan, Carpenter et al., 1993, p. 2). It is also

viewed as a motivational drive to continue or discontinue an activity or competitive sport (Weiss & Weiss, 2003). Consistent to both definitions is the idea that commitment helps to further understand why some athletes endure in their sport while others do not.

Commitment accounts for situations where individuals either want to (satisfaction and self-identification) or have to (social pressure) continue their involvement (Carpenter & Coleman, 1998) or some combination of the two (Scanlan, Carpenter et al., 1993).

Scanlan and colleagues' sport commitment model was developed to examine potential differences of commitment in different situations while accounting for a range of possible influential factors. The development of the sport commitment model was based on several theories and models in the psychology field including the investment model (Rusbult, 1980a), interdependence theory (Kelley, 1983) and the social exchange theory (Thibault & Kelley, 1959). Similar points emerge from the three models and theories concerning commitment. Each model or theory considers satisfaction, alternatives and investment important predictors of commitment.

1.2.1.1 Investment Model

Rusbult's (1980a) investment model, based on understanding social relationships, served as the initial basis of the sport commitment model developed by Scanlan and colleagues (1993). The investment model considers commitment (i.e., duration and involvement) to a relationship as a product of satisfaction, alternatives, and investments. These three factors predict the extent of commitment to romantic relationships, friendships and work settings.

The model assumes that individuals are motivated to maximize their rewards and minimize their costs (Rusbult, 1980a). Satisfaction is a function of individuals' perceptions of the rewards and costs associated with involvement, with greater satisfaction resulting when the rewards exceed the costs. Rewards are referred to as concrete consequences (money, property, or trophies), and psychological consequences (achieving mastery and desired goals, feeling competent, and admiration and esteem of others) (Smith, 1986, p. 37). Cost includes such items as spending time and effort, experiencing the disapproval of others, negative emotions such as anxiety or depressions, and feelings of helplessness (Smith, 1986, p. 37). The alternative construct focuses on the perceived attractiveness of other possibilities to continued involvement. As the rewards associated with the best alternative increase and costs decrease, commitment towards a particular engagement is lowered (Rusbult, 1980a). In addition to the factors related to costs, rewards, and alternatives, are investments. Investments include the resources individuals put directly into their involvement such as time, effort, money, and friends, which cannot be redeemed if involvement ends. Greater commitment is associated with higher satisfaction, fewer attractive alternatives and more investment (Rusbult, 1980a).

1.2.1.2 Interdependence Theory

The interdependence theory assumes that there are three major classes of what Kelley (1983) labels "causal conditions" for commitment. The first class identifies the extent to which the relationship is viewed as attractive, for example in terms of love, liking, satisfaction, or enjoyment. The second class of causal conditions reflects the degree to which alternatives to the current commitment are viewed as more or less

attractive, and the final class considers the restraining forces or barriers to termination of activity (i.e., personal investments and social constraints). Similar to that of the investment model, greater commitment has been shown to be associated with more attractive relationships, less attractive alternatives and fewer barriers.

1.2.1.3 Social Exchange Theory

Social exchange theory assumes that the desire to maximize positive experiences and to minimize negative ones regulates human behaviour (Thibault & Kelley, 1959). Therefore, people should take part in relationships and activities only so long as positive outcomes are an end result. Individuals should be satisfied with (or enjoy) their relationship or activity when the benefits outweigh the costs, and dissatisfied when costs outweigh benefits. Greater satisfaction should lead to greater commitment (Thibault & Kelley, 1959).

The decision to persist or to drop out of an activity or relationship depends on the balance of rewards and costs and also on the availability and attractiveness of the alternatives. Barriers such as personal investment and social constraints (Thibault & Kelley, 1959) are a third factor related to commitment. The social exchange paradigm has been examined in domains such as friendships, work, and romantic relationships. It has been found to be effective in predicting commitment and distinguishing between individuals who stay in a relationship or job and those who leave (Guillet, Sarrazin, Carpenter, Trouilloud, & Cury, 2002).

1.2.2 Sport Commitment Model

1.2.2.1 The Development of the Sport Commitment Model

Scanlan, Carpenter and her colleagues (1993) suggest that commitment is a motivational force promoting continued involvement, and therefore is defined as a general psychological state. Sport commitment is defined as the “psychological construct representing the desire and resolve to continue sport participation” (Scanlan, Carpenter et al., 1993 p.6). Scanlan and colleagues took the three factors from Rusbult’s investment model and converted them into five factors that were deemed more relevant to the sport domain. The satisfaction component of Rusbult’s model was re-conceptualized as sport enjoyment. The element of alternatives is synonymous to Rusbult’s original definition. The concept of investment was divided into two related but distinct entities, personal investment and involvement opportunities (Carpenter & Coleman, 1998). Based on the research in social and sport psychology, social constraint was added to the model. Social expectations can lead to individuals feeling pressured to stay involved (Scanlan, & Lewthwaite, 1984). More recently, social support was added to the model (Carpenter et al., 1993). Increased perceptions of support and encouragement from significant others is associated with continued participation (Brown, 1985). For instance, all the athletes in a New Zealand study felt that social support enhanced their commitment (Scanlan, Russell, Beals et al., 2003). Commitment is thus predicted by sport enjoyment, personal investment, involvement opportunities, attractive alternatives, social constraints and social support (Carpenter, 1995; Carpenter et al., 1993; Scanlan, Carpenter et al., 1993).

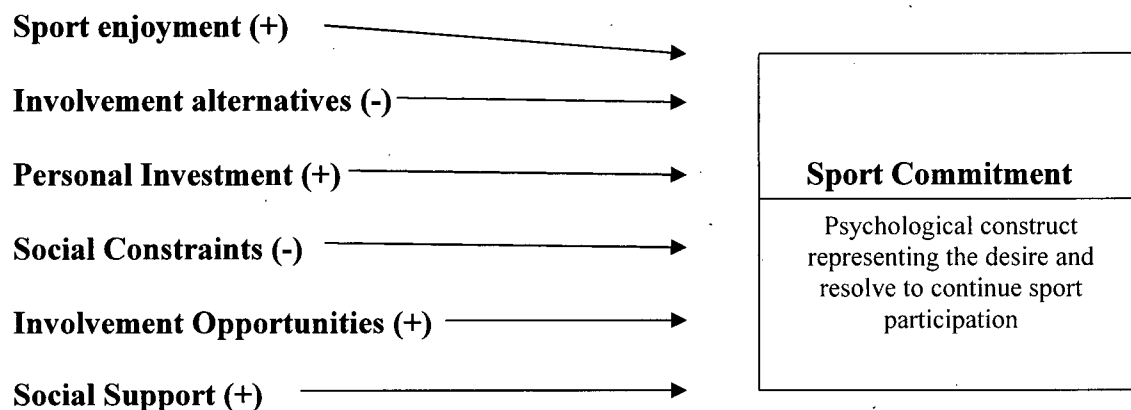


Figure 1 Original Sport Commitment Model (Scanlan, Carpenter, Schmidt, Simons, Keeler, 1993) with the addition of social support (Carpenter, 1993). Note: the positive and negative signs demonstrate the direction of influence.

1.2.2.2 Testing the reliability and validity of the Sport Commitment model

The Sport Commitment Model was designed as an applicable template for all adults and youth sports from recreational to elite levels (Carpenter et al., 1993; Scanlan, Carpenter et al., 1993). The model has been tested with participants from various ethnicities (Carpenter & Coleman, 1998; Carpenter et al., 1993; Carpenter & Scanlan, 1998; Scanlan, Carpenter et al., 1993; Scanlan, Simons et al., 1993), sports (Carpenter & Coleman, 1998; Carpenter et al., 1993; Carpenter & Scanlan, 1998; Scanlan, Carpenter et al., 1993; Scanlan, Simons et al., 1993; Scanlan, Russell, Beals et al., 2003; Scanlan, Russell, Wilson et al., 2003; Weiss, Kimmel, & Smith, 2001; Wilson, Rodgers, Carpenter, Hall, Hardy, & Fraser, 2004), abilities (Carpenter & Coleman, 1998; Scanlan, Russell, Beals et al., 2003; Scanlan, Russell, Wilson et al., 2003; Weiss et al., 2001) and ages (Scanlan, Carpenter et al., 1993; Scanlan, Simons et al., 1993; Scanlan, Russell, Beals et al., 2003; Scanlan, Russell, Wilson et al., 2003; Weiss et al., 2001). Two studies have looked at longitudinal effects of the predictor variables presented in the model

(Carpenter & Coleman, 1998; Carpenter & Scanlan, 1998). Despite good basic research performed on the Sport Commitment Model, future examination is necessary. The model has been examined with youth elite and recreational athletes in the United States of America and England, (Carpenter & Coleman, 1998; Carpenter & Scanlan, 1998; Carpenter et al., 1993; Scanlan, Carpenter et al., 1993; Scanlan, Simons et al., 1993; Weiss, Kimmel, & Smith, 2001), adult elite athletes (Scanlan, Russell, Beals et al., 2003; Scanlan, Russell, Wilson et al., 2003) and adult exercisers (Wilson et al., 2004). An examination of the model with youth athletes from a diverse range of sports, ethnic backgrounds, gender, and ages has established the general validity and reliability for most of the model's predictor variables. Structural equation modeling has demonstrated the model's predictive power and supported the positive contribution of enjoyment, personal investment, and involvement opportunities to the prediction of sport commitment (Carpenter & Coleman, 1998). A large proportion of the research has been done on youth athletes whereas only selected studies (Scanlan, Russell, Beals et al., 2003; Scanlan, Russell, Wilson et al., 2003; Wilson et al., 2004) have examined adults' commitment.

Carpenter and Scanlan (1998) demonstrated that longitudinal changes in some predictor variables (involvement opportunities and enjoyment) of the Sport Commitment Model predicted associated changes in sport commitment among youth high school soccer players. Carpenter and Scanlan dropped the involvement alternatives and personal investments variables due to lack of statistical significance. However, they did find that increases in commitment over time corresponded to increases over time in players' involvement opportunities. There were difficulties with a possible ceiling effect for enjoyment as a predictor of commitment. Changes over time in commitment were

significantly predicted by changes in sport enjoyment, recognition opportunities and social opportunities in a longitudinal study of elite youth English cricket players (Carpenter & Coleman, 1998). Perceived alternatives showed no change over time and did not impact changes in commitment. Although longitudinal studies are limited in number, general findings from these experiments can be used to inform longitudinal and cross-sectional research investigations; specifically, focusing upon differences in ages, athletic ability and level of competitiveness. Based on results of previous studies coupled with the necessity of advancing the understanding of sport commitment in an adult population, examining the predictors of commitment in adult populations, while controlling for level of competition, age, and gender, is warranted. With the current trends of promoting increase activity levels among adults, it is an opportune time to study why some athletes commit to sports, and if their commitment is associated with more frequent activity behaviour.

1.2.3 Antecedents of sport commitment: Relevance to sport research

The identification of key determinants of sport commitment was based primarily on previous commitment research outside of sport (Becker, 1960; Kelley, 1983; Rusbult, 1980a). The determinants are predicted to influence sport commitment independently and the magnitude of the influence is expected to vary across different samples of athletes such as elite versus non-elite participants (Carpenter & Coleman, 1998; Scanlan, Carpenter et al., 1993). A prior test of the Sport Commitment Model using structural equation modeling showed that for ten to nineteen year old male and female football, soccer and volleyball players, the predictors specified in the model explained 68% of the

commitment variance (Carpenter et al., 1993). The predictors in the study were able to explain a high variance of commitment. Each section of the sport commitment model will now be considered, with respect to relevant research.

1.2.3.1 Sport Enjoyment

Sport psychology research shows that enjoyment is a major attraction variable for athletes (Scanlan & Simons, 1992). Sport enjoyment is defined as a “positive affective response to the sport experience that reflects generalized feelings such as pleasure, liking, and fun” (Scanlan, Carpenter et al., 1993, p. 6). As mentioned earlier, sport enjoyment was substituted for the “satisfaction” construct from Rusbult’s (1980a) investment model. Satisfaction is a function of individuals’ perceptions of the rewards and costs associated with involvement, with greater satisfaction resulting when the rewards exceed the costs (Carpenter & Coleman, 1998; Carpenter, & Scanlan, 1998). Therefore, in Rusbult’s satisfaction conceptualization, the focus was on quantifying rewards and costs in a balance, whereas Scanlan et al.’s enjoyment construct focuses more on the nature of the affective response. Sources of enjoyment can include perceived competence, effort, skill mastery, elements of the activity itself, social recognition, interactions, social and life opportunities, extrinsic rewards, social support, lower social constraints and sense of specialness (Scanlan, Carpenter et al., 1993; Scanlan et al., 1989; Scanlan & Simons, 1992; Weiss et al., 2001).

Past studies describe enjoyment as a central positive affect related to participation motivation, especially in youth and elite sport and lack of enjoyment as a significant reason for dropout (Carpenter et al., 1993; Carpenter & Scanlan, 1998; Scanlan et al.,

1989; Scanlan, Carpenter et al., 1993; Scanlan & Lewthwaite, 1986; Scanlan, Stein, & Ravizza, 1989; Weiss & Petlichkoff, 1989). Elite athletes have also reported enjoyment to be strongly associated with the desire to exert effort and persist in their particular sport (Scanlan, Carpenter et al., 1993; Scanlan et al., 1989). For instance, a greater perceived challenge may lead to greater situational enjoyment of participation in all forms of sport (Chalip et al., 1984). Sport enjoyment is positively related to perceptions of personal effort expenditure (Scanlan et al., 1989) and an increased desire for future participation in sport (Scanlan & Lewthwaite, 1986; Scanlan et al., 1989). Overall, experiencing high levels of enjoyment is thought to increase the level of commitment (Scanlan, Carpenter et al., 1993).

Scanlan demonstrates that enjoyment is a critical aspect of sport commitment. This illustration of sport enjoyment is in contrast to Ericsson's suggestion that deliberate practice is not inherently enjoyable (Ericsson, Krampe, & Tesch-Romer, 1993). Deliberate practice is an effortful activity motivated by the goal of improving performance. It is not inherently enjoyable, requires effort and does not lead to immediate rewards (Ericsson et al., 1993). Either Ericsson's theory undervalues athlete's enjoyment of practice or sport enjoyment perceived by Scanlan comes principally from performance and not practice (Ericsson et al., 1993). In recent literature concerning deliberate practice in sport, athletes have found practice that has been pertinent to a particular sport to be enjoyable for the athletes, which is consistent with the view of Scanlan's Sport Commitment Model (Helsen, Starkes, & Hodges, 1998).

Sport enjoyment has emerged as a significant predictor, and is often the strongest predictor of sport commitment in the studies testing the Sport Commitment Model.

Enjoyment is moderately correlated with many of the other constructs represented in the Sport Commitment Model such as involvement opportunities, personal investment, social support, recognition from others, low perceived pressure from significant others, effort and mastery, and social and life opportunities (Scanlan & Simons, 1992; Weiss et al., 2001). These findings suggest that enjoyment may mediate the influence of several constructs on sport commitment.

1.2.3.2 Involvement Alternatives

Involvement alternatives are defined as “the attractiveness of the most preferred alternative to continued participation in the current endeavor” (Scanlan, Carpenter et al., 1993, p. 7). This construct evaluates the degree to which athletes feel alternative activities are more or less desirable in relation to participating in their current sport program (Carpenter et al., 1993). The alternatives construct focuses on the perceived attractiveness of options to continued involvement (Rusbult, 1980a) and the construct in the Sport Commitment Model is synonymous to Rusbult’s original conceptualization.

The impact of involvement alternatives on sport commitment should vary across age and level of expertise. In most cases, youth sport athletes have the ability to take part in several sport or non-sport programs without sacrificing their sport participation, due to less hours of total training time in a particular sport than older elite athletes (Scanlan, Carpenter et al., 1993). Therefore, in youth studies, involvement alternatives are not as significant as other predictors. In older athletes, involvement alternatives are more important to consider. Other priorities can be either attractive or unattractive supporting the decision to extend involvement alternatives to include a positive and negative

connotation (Scanlan, Russell, Beals et al., 2003). Hence, it has been predicted that having more attractive alternatives leads to lower sport commitment (Carpenter et al., 1993; Scanlan, Carpenter et al., 1993).

1.2.3.3 Personal Investment

Personal investment is defined as the “personal resources that are put into the activity which cannot be recovered if participation is discontinued” (Scanlan, Carpenter et al., 1993, p. 7). Personal resources include time, effort, and money (Carpenter & Scanlan, 1998; Carpenter et al., 1993; Scanlan, Carpenter et al., 1993). The importance of each resource varies by sport or sport program. For example, gymnastics would involve more money than running because of the need for floor space, clothing, equipment, coaches and trainers. In contrast, running is more individual-based and requires only proper footwear and clothing (Carpenter et al., 1993; Scanlan, Carpenter et al., 1993).

In Rusbult's (1980) view, the construct was founded on the basis that once resources are invested they cannot be reclaimed upon termination. Scanlan and colleagues also support this view of investment. The construct of personal investment is closely knit with that of deliberate practice. The 10 year rule suggests that elite performers require more than 10 years of practice to acquire necessary skills and experience to perform at international levels and make important decision and choices concerning one's athletic career (Simon & Chase, 1973). After about 10 years of practice a large amount of personal investment of time and effort has been devoted to the sport along with high levels of commitment (Helsen et al., 1998). As athletes improve, increasing the amount of deliberate practice required to reach higher levels would suggest

that dedicating more time to practice, personal investment of time increases, effort put into relevant practice activities rises, enhancing commitment and persistence by athletes (Helsen et al., 1998). Therefore, due to this potential loss of investments, individuals become more attached to an activity, increasing their commitment (Carpenter et al., 1993; Scanlan, Carpenter et al., 1993; Scanlan, Russell, Beals et al., 2003). Personal investments are a significant predictor of sport commitment (Scanlan, Carpenter et al., 1993).

1.2.3.4 Social Constraints

Social constraints are defined as the “social expectations or norms, which create feelings of obligation to remain in the activity” (Scanlan, Carpenter et al., 1993, p. 7), and involves the social pressures to continue participating (Carpenter et al., 1993; Scanlan, Carpenter et al., 1993). This construct is based on theoretical and empirical research in social and sport psychology, which has indicated that social expectations can make individuals feel pressured to remain engaged (Scanlan & Lewthwaite, 1984).

The research findings in support of a significant link between social constraints and commitment have been mixed (Scanlan, Carpenter et al., 1993; Scanlan, Russell, Beals et al., 2003). Some studies have found a weak negative relationship to commitment, where pressure from significant others was related to stress and the perceived pressure was seen as aversive (Carpenter et al., 1993). However, other researchers proclaim that due to the nature of youth sport being one of enjoyment and choice, it permits young athletes to participate because they want to rather than because they have to (Carpenter & Coleman, 1998; Scanlan, Russell, Beals et al., 2003). In a study by Scanlan and

colleagues (2003), it was acknowledged that adults tended to have strong predictions of self-control and self-determination and therefore tended to commit to activities for personal reasons rather than because of pressures from others. These results proved to be similar to those found in youth athletes (Scanlan, Russell, Beals et al., 2003). Given the ambiguity on the effects of social constraints, future research is required for examination of the effects of social constraints on sport commitment.

1.2.3.5 Involvement Opportunities

Involvement opportunities are defined as the “valued opportunities that are present only through continued involvement” (Scanlan, Carpenter et al., 1993, p. 8). These events can be actual/realistic (i.e., chance for mastery or the chance to be with sport friends) or they can be in the mind (i.e., belief that playing in the program is the only way to remain fit) (Scanlan, Carpenter et al., 1993). At the beginning of a sport program, little valued opportunities may be noticed but as involvement intensifies, opportunities emerge as an integral aspect of participation (Scanlan, Simons et al., 1993). Research indicates that youth athletes join programs for the opportunities they perceive to exist and depart when these opportunities are scarce or are available elsewhere (Carpenter & Coleman, 1998). As commitment levels increase, athletes would miss opportunities received from involvement in the program if they quit (Scanlan, Carpenter et al., 1993). As such, involvement opportunities are significantly related to sport commitment (Scanlan, Carpenter et al., 1993).

1.2.3.6 Social Support

Social support is defined as “the support and encouragement the athlete perceives significant others to provide for their involvement in sport” (Scanlan, Russell, Wilson et al., 2003, p. 367). Although studied in other models of motivation, social support has only recently been examined as a potential predictor of sport commitment (Carpenter & Coleman, 1998; Scanlan, Russell, Wilson et al., 2003). The inclusion of social support was based on research with adolescent female sport participants (Brown, 1985) which showed that increased perceptions of support and encouragement from significant others was related to continued involvement. According to Brown, withdrawal from sport was closely linked with the degree of social support received for participation in swimming. In Brown’s study, two groups of swimmers (i.e., former, present) were asked questions about their support when they were swimmers. Former swimmers reported less positive reinforcement for their swimming role than present swimmers. Former swimmers also received less overall encouragement, less encouragement from specific significant others, less support for involvement, and their parents were less involved in their swimming (Brown, 1985). In addition, Carpenter & Coleman (1998) noted that an increase in social support over time was associated with an increase in sport commitment in elite youth athletes. The more support and encouragement perceived from significant others for involvement, the greater the individuals’ commitment (Carpenter, 1995; Carpenter & Coleman, 1998).

1.2.3.7 Other Potential Predictor Variables

Predictor variables of sport commitment are constantly being relabeled, added or dismissed as research progresses in this field. Two predictor variables that have appeared in recent research are perceived competence and perceived ability (Carpenter & Coleman, 1998; Weiss et al., 2001). Perceived competence assesses beliefs in one's abilities, such as playing games and sport skills (Weiss et al., 2001) and is a strong predictor of youth sport motivation and enjoyment (Scanlan & Simons, 1992). A recent investigation examined adding perceived competence as a predictor of enjoyment and commitment (Weiss et al., 2001). Despite the model emerging as significant, perceived competence was not a significant predictor and was therefore dropped from the analyses (Weiss et al., 2001). Perceived competence will not be included in the present study for several reasons. First, perceived competence is often moderately correlated with enjoyment and is likely a redundant predictor of commitment in addition to enjoyment. Second, difficulty lies in the varying ways to define competence, whether it is through an objective manner, individual ranking system, a range that captures recreational through elite performers or a self-referenced standard. Most importantly, perceived competence does not fit within the investment theory model.

Perceived ability (perceived skill level) is another possible predictor of commitment (Carpenter & Coleman, 1998). For example, team selections of young athletes are inclined to be based on demonstrated ability in competition and training (Carpenter & Coleman, 1998), and as a result tended to have greater commitment. Past research illustrates that perceived ability is an important factor in the determination of drop out rates for youth athletes, and that higher perceived ability would be related to

higher commitment (Carpenter & Coleman, 1998). Although these are two possible future constructs to be added to the Sport Commitment Model, they will not be evaluated in this study for the reasons stated above.

The role of gender differences is not well understood in the Sport Commitment Model. According to Weiss et al. (2001), gender differences may emerge as different populations are examined. Since the research has been quite restrictive to date, constructs related to sport commitment may be relabeled, added or dismissed as research progresses in this field.

Research on the Sport Commitment Model has been focused on the antecedents of sport commitment, at the expense of examining the consequences of commitment such as behaviours (Weiss et al., 2001; Wilson et al., 2004). Sport commitment is defined as the psychological desire and resolve to continue participation in sport. Therefore, a test of the sport commitment model would be incomplete without studying some behavioural consequences of commitment. It is necessary to examine the relationship of athletes with differing levels of commitment and their level of participation (frequency and intensity) and performance (Weiss & Ferrer-Caja, 2002). The inclusion of behavioural outcomes of sport commitment when testing this model allows for a comprehensive look at participation motivation. Salancik (1977) argued that behaviour or action was the most accurate way of measuring commitment. Locke and Latham's (1990) theory gives evidence of a commitment -behaviour relationship. They argued that individuals with high commitment should have goal levels that are more highly and positively related to performance than those with low commitment to the goals. High commitment and high

goals lead to an increase in performance whereas low to moderate commitment leads to a low to moderate level of performance (Locke & Latham, 1990).

Van Yperen (1998) conducted a study to determine the major factors associated with behavioural commitment (i.e., stay vs. leave) in international, national, and local volleyball referees. Compared to local level referees, those at the international level had more years officiating volleyball and a lower intent to quit. Low enjoyment of officiating and high attractive alternatives was significantly related to intention to quit, which influenced actual turnover. This study represents an initial test of the relationships among determinants, a psychological commitment construct and a behavioural consequence that are implied within the sport commitment model. Therefore, actual training behaviour and its relationship to commitment will be examined in this study.

1.2.3.8 Mediation Model of Sport Commitment

The Sport Commitment Model is a simple and direct relational model. According to Weiss, Kimmel and Smith (2001), a revised model of the current Sport Commitment Model could be warranted, holding that enjoyment mediates the relationship between the other five determinants and sport commitment (see Figure 2). Sport enjoyment has emerged as the strongest predictor in many past studies, has consistently shown to be positively correlated to sport commitment, and is moderately related to opportunities, investments, and social support (Scanlan, Carpenter et al., 1993; Weiss et al., 2001). These conclusions may suggest that enjoyment is mediating the influence of other constructs of sport commitment (Weiss et al., 2001). Hence, this model suggests that key variables contribute to sport enjoyment, which in turn enhance commitment. Strategies

can be designed to enhance athlete's enjoyment or attraction to their sport, which in turn will heighten their desire to increase or preserve commitment.

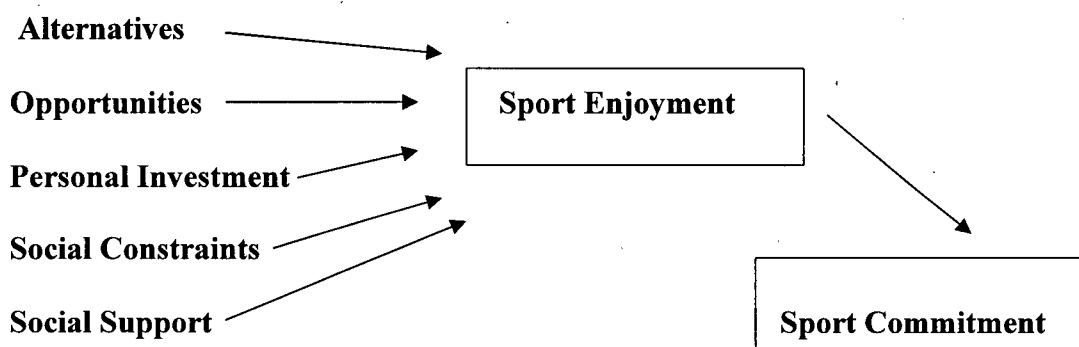


Figure 2 Mediation Model of Sport Commitment (Weiss et al., 2001).

Weiss and colleagues (2001) examined both the original sport commitment model and the mediated model with youth tennis players. Support was found for both models. Results confirmed the strong influence enjoyment has on commitment along with investment, alternatives and social constraints in the direct model. However, social constraints and social support were not associated with enjoyment in the mediational model. Investment and alternatives were found to be more strongly related to enjoyment than commitment. Less attractive alternatives and greater investments were more strongly associated with levels of tennis enjoyment than with commitment levels (Weiss et al. 2001).

1.2.4 Proposed Model of Sport Commitment when looking at Adult athletes in Individual Sports

Based on a review of the original Sport Commitment Model (Figure 1) and the mediational Sport Commitment Model (Figure 2), it is important to investigate the merits

of both direct and mediational effects. Actual behaviour, a new consideration to Scanlan and Weiss' models, is included in the proposed models.

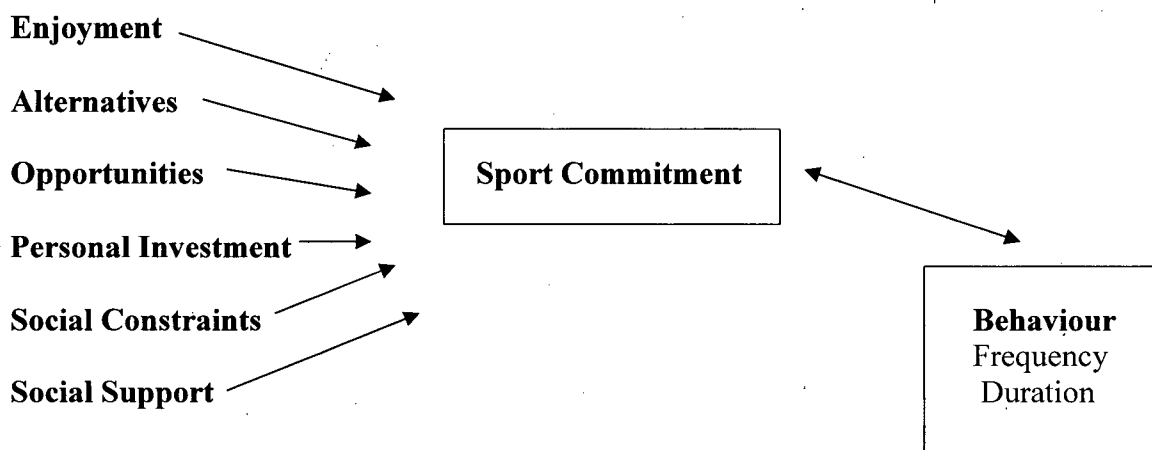


Figure 3 Revised Sport Commitment Model (Scanlan, Carpenter et al., 1993)

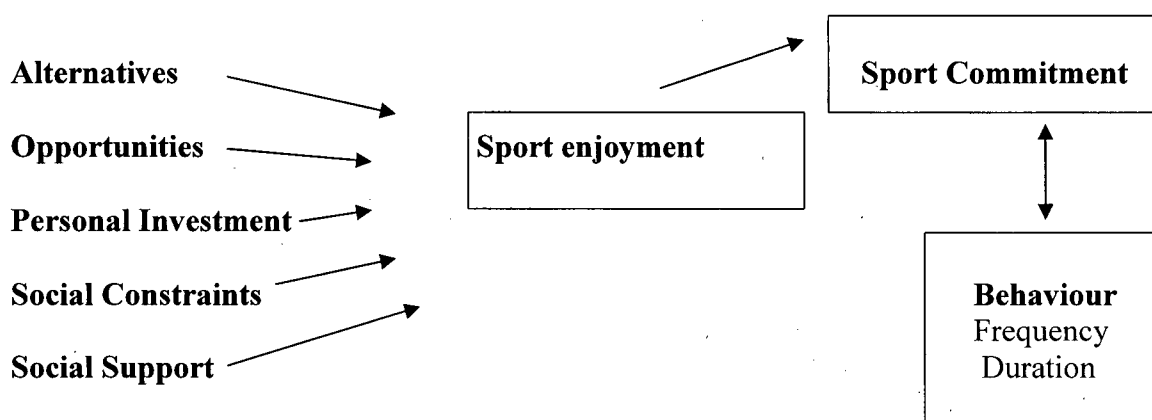


Figure 4 Revised Mediation Model of Sport Commitment (Weiss et al., 2001)

Research indicates that endurance athletes have multiple motives for enduring in their sport (Barrell, Chamberlain, Evans, Holt, & Mackean, 1989). Endurance events are unique as they are often done individually, take many hours to complete and cause feelings of pain and exhaustion at different points throughout and after the event. There are many running, biking or swimming groups available for training, but even though one can train with others, they are always performing the actual event on their own.

Triathlons can challenge the limits of physical and mental abilities (Baker & Sedgwick, 2005). It is a sport that requires competency in three different disciplines: swimming, bicycling, and running of varying lengths. A novelty of the triathlon is that it is a sport in which few youth/adolescent athletes participate. Top triathletes are mostly between the ages of 27 and 32 (Hunter & Kirschbaum, 1985). Triathlons require strong commitment and a great deal of perseverance to set and follow a plan, train, and compete in various races. Time, effort and money are important factors when pursuing the sport of triathlon (Clingman & Hilliard, 1988). The bicycle and race fees prove to be expensive items for the budget, especially for the more dedicated and higher level triathlete who participates in more races and requires sophisticated equipment. Most triathletes work intensely and put in long hours of swimming, cycling and running to improve performance (Clingman & Hilliard, 1988). Triathletes may train on average from 9 to 15 hours a week (Hodges et al., 2004).

There are wide ranges of elements that lead to success in triathlons. Superior physical fitness and technical skill are important requirements but good technique and high levels of muscular and cardiovascular strength and endurance are not the only factors needed to achieve success. Acquiring the ability to maintain proper focus, manage

physical pain, set appropriate goals, and maintain high levels of motivation are also vital elements for successful performances (Baker & Sedgwick, 2005). One of the best predictors of success has been shown to be the amount of practice a triathlete puts into the sport (Hodges et al., 2004). The following quotation exemplifies internal challenges faced by triathletes: "There is a fundamentally satisfying quality about triathlon that is not well understood, nor easy to define. It has much to do however, with our inherent need to and deep-seated joy of, struggle, our lust for hard work and hardship, and the feelings of accomplishment that come after effort" (Hunter & Kirschbaum, 1985, p. 3).

Triathlon is a unique sport, consisting of three different single sports merged into one, in which high volumes of training, money and effort are necessary. Due to the rising interest in the sport, the amount of training involved, and the varying ages of participants it is important to examine the factors that predict commitment as well as the impact of commitment on actual behaviour.

1.2.5 Summary of Literature Review

Despite its relative infancy in the field of sport psychology, research on sport commitment has already produced a wealth of insight into the psyche of athletes. Further examination of sport commitment will add to the existing knowledge in the area. The Sport Commitment Model (Scanlan, Carpenter et al., 1993) has been primarily examined with youth populations. Additional research with varying population groups, such as adult non-elite athletes, would be beneficial. Although much research has been conducted using team sports, few studies have examined the effects of sport commitment in individual sports. Only recently have studies begun to look at the consequences of sport

commitment, such as drop out and burnout, but none have specifically studied training behaviours (frequency and duration). Training behaviours reflect actual behavioural commitment to a sport. The Sport Commitment Model has been modified to improve its predictive ability by adding social support perceptions (Carpenter et al., 1993), investigating whether sport enjoyment mediates the commitment process (Weiss et al., 2001) and examining behavioural outcomes of the model. This study will further the research in the area of sport commitment in attempt to fill some of the research gaps mentioned above in the literature of sport commitment.

1.3 RESEARCH QUESTION AND HYPOTHESES

1.3.1 Research Question

There are a number of research questions associated with the objectives of this study. The examination of commitment in triathlon age group athletes, the association between commitment and behaviours, and the testing of the distinct contribution of two models of sport commitment, leads to the following questions:

1. Does the sport commitment model hold for adult triathletes? Specifically, is sport commitment related to enjoyment, social support, social constraints, investment opportunities, and attractive alternatives in adult triathletes?
2. Will there be gender differences in the overall model and particular components of the model?
3. Is sport commitment related to duration of current training (i.e. current hours/week)?

4. Does the mediation model proposed by Weiss et al., 2001 provide a better fit than the direct effects model proposed by Scanlan and colleagues? Specifically, does enjoyment mediate the relationship between commitment and the predictors of attractive alternatives, social support, personal investment, and social constraints?

1.3.2 Primary Hypotheses

The proposed models would provide a good fit to the data. The models will hold that (a) the determinants consisting of enjoyment, opportunities, investments, social support, social constraints and alternatives will predict psychological sport commitment, (b) psychological sport commitment will have a positive relationship with actual behaviour, and (c) sport enjoyment will act as a mediator between the other determinants and psychological sport commitment.

1.3.2.1 Secondary Hypotheses

Secondary hypotheses include:

- (i) It was expected that commitment would be positively related to enjoyment, opportunities, personal investment, social support, and negatively related with attractive alternatives and social constraints.
- (ii) It was hypothesized that there will be no gender differences.
- (iii) It was expected that the mediational model proposed by Weiss and colleagues will be superior to the original model. That is, enjoyment will mediate the relationship between sport commitment and the predictor variables of social support, investment, opportunities, social constraints, and alternatives.

CHAPTER 2

2.1 Methods

2.1.1 Participants

2.1.1.1 Determining Sample Size

To have adequate power (80% with alpha set at 0.05) given a moderate effect size using a multiple regression statistical analysis, it was necessary to have approximately fifteen to twenty participants per predictor variable in the model (Stevens, 1996). Therefore a minimum of 120 participants (i.e., 8 predictors) was necessary in this study to achieve statistical power.

2.1.1.2 Description of Participants

Four hundred and ten questionnaires were given out to triathletes to participate in this study. The participants were recruited at three different triathlon races, at a triathlon expo held in Vancouver and at various club work-outs throughout the lower mainland. The sample included 144 age-group adult triathletes: 69 males (47.9%) and 75 females (52.1%), representing a 35.1% response rate. Participants were 19 years of age and older ($X = 36.48$) and were from various cities throughout the provinces of British Columbia, Ontario and Quebec, as well as the country of New Zealand. Years of experience ranged from one to thirty with the majority of the triathletes having between one and five years of experience ($X = 4.5$). Only 27.8% of the participants had children, 25% were students and 86.1% were employed, most working 40 hours per week.

Table 1: Biographic Information Subdivided by Gender

	Age (Mean)	Avg Performance Time Past Season(min)	Number of Years Involved	Number of races per year	Current hrs of practice per week	Number of hours /week working
Mean	F: 35 M: 38	F: 151 M: 145	F: 3.7 M: 5.4	F: 3.7 M: 4.3	F: 11.4 M: 11.8	F:33hrs M:37hrs
SD	F: 9.3 M: 12	F: 44 M: 26	F: 4.8 M: 5.2	F: 2.2 M: 2.6	F: 6.9 M: 6.4	F: 15 M: 16
Range	F: 37 M: 53	F: 261 M: 126	F: 30 M: 23	F: 12 M: 12	F: 50 M: 32	F: 55 M: 70
Number	F: 75 M: 68	F: 39 M: 47	F: 75 M: 68	F: 74 M: 68	F: 75 M: 69	F: 75 M: 67

2.1.2 Measures

2.1.2.1 Basic Demographics, Training and Racing Experience

Part I addressed a variety of demographic and personal variables such as gender, family and occupation (see Appendix A). Part II addressed general triathlon history, an evaluation of practice activities, training history, and periodization of training (see Appendix B). This measure is a modified version of a questionnaire measuring practice in triathletes used by Hodges, Kerr, Starkes, Weir, & Nananidou (2004). The first section included information about current practice habits such as number of hours they train, if they had stopped training for a lengthy period of time and training during competition. Information concerning athletes' training histories was obtained in a backward manner so that reliable estimates were provided first, in attempts to avoid positively biased estimates. Participants were asked to first fill out their current age, their age corresponding to the previous two years, leading to a three-year decrement of age. The athletes reported their average time in a triathlon for that year, the number of hours per week in triathlon training and estimated number of weeks off from training per year.

From this information, yearly practice amounts were estimated. Their current number of hours a week spent training was calculated and used as the frequency and duration of training value.

2.1.2.2 Sport commitment variables

Part III contained reliable and valid items measuring the various components of the Sport Commitment Model (see Appendix C) (Carpenter et al., 1993; Sarason, Sarason, Shearin, & Pierce, 1987; Scanlan, Carpenter et al., 1993; Scanlan, Simons et al., 1993; Wilson et al., 2004).

2.1.2.2.1 Sport Commitment

Four questions assessed the triathlete's sport commitment (Scanlan, Simons et al., 1993). The items reflected a personal decision or choice to be involved in triathlons. Items included were: "How dedicated are you to triathlons?", "How hard would it be for you to quit participating in triathlons?", "How determined are you to keep participating in triathlons?", and "What would you be willing to do to keep racing/training in triathlons?". These items were assessed using a 5-point Likert scale ranging from 1 to 5, with low scores indicating low commitment (see Appendix C for specific anchors for each item).

2.1.2.2.2 Enjoyment

Two scales measured sport enjoyment in this study. Four questions assessed the triathlete's sport enjoyment (Scanlan, Simons et al., 1993). Items included were: "Do you enjoy participating in triathlons?", "Are you happy participating in triathlons?", "Do you have fun participating in triathlons?", and "Do you like participating in triathlons?". The scale to measure enjoyment developed by Scanlan's has demonstrated some undesirable measurement properties, as the enjoyment measure has consistently been found to be highly skewed, and have low variance and a very high mean. Therefore, along with Scanlan's measure, the Physical Activity Enjoyment Scale (PACES) was used to measure enjoyment in this study (Kendzierski & DeCarlo, 1991).

The PACES measure consists of 18 bipolar statements that are scored on a 7-point scale (see Appendix C). Eleven statements were in reverse order. A summary score was calculated by adding all 18 items. Participants rated how they felt *when they are training in the sport of triathlon*. An example of a bipolar objective is "I feel bored" – "I feel interested" (Kendzierski et al., 1991; Crocker et al., 1995). The higher the summary score added from PACES the more the individual enjoys doing that type of activity and the lower the score the less the individuals enjoy doing that particular activity. The scale has shown to be reliable and valid (Crocker et al., 1995; Kendzierski & DeCarlo, 1991).

2.1.2.2.3 Personal Investment

Three questions assessed resources that have been put into triathlon that one would lose if the activity were to end. These encompass the amount of effort, time, and energy. Examples include "How much of your *time* have you put into triathlons this

season?", "How much *effort* have you put into triathlons this season?", and "How much of your own *money* have you put into triathlons this season for things like entrance fees or equipment?". The 5-point Likert response format ranged from "none" to "very much" (Scanlan, Simons et al., 1993).

2.1.2.2.4 Social Constraints

Scanlan's measure of social constraints was not used, as it did not suit an adult population. A measure used by Wilson and colleagues (2004) where they studies adult exercisers was used. Five questions assessed perceived social pressures that create feelings of obligation to remain in triathlons. Sample questions include "People will think I am a quitter if I stop triathlons", "I feel pressure from other people to participate in triathlons", "I have to keep participating in triathlons to please others", and "People will be disappointed with me if I quit triathlons". A 5-point Likert response format was used, with anchors ranging from "not at all true for me" to "completely true for me" (Wilson et al., 2004).

2.1.2.2.5 Involvement Opportunities

Four questions assessed involvement opportunities in the sport of triathlon. Questions included were "Would you miss being a triathlete if you left the sport?", "Would you miss your head coach if you left?", "Would you miss the good times you have had participating in triathlons this season if you left the sport?", and "Would you miss your friends in triathlons if you left the sport?". A 5-point Likert scale was used ranging from "not at all" to "very much" (Scanlan, Simons et al., 1993).

2.1.2.2.6 Involvement Alternatives

Five questions assessed the degree to which other activities were more attractive than participating in triathlons. Items from Wilson et al. (2004) were used rather than Scanlan's item because Scanlan's research used one question to assess involvement alternatives. Wilson et al. (2004) developed their multi-item measure from a combination of Scanlan, Simons et al. (1993) and Carpenter and Scanlan, (1998) questionnaires. Sample questions include "Compared to triathlons, there are other things I could do which would be more fun", "Compared to triathlons, there are other things I could do which would be more enjoyable", "Compared to triathlons, there are other things I could do which would be more worthwhile", "I would be happier doing something else instead of triathlons", and "I would like to do something else instead of triathlons". A 5-point Likert response format was used ranging from "not at all true for me" to "completely true for me" (Wilson et al., 2004).

2.1.2.2.7 Social Support

Six questions assessed social support. A modified version (specified for triathlons) of a brief measure of the Social Support Questionnaire (Sarason et al., 1987) was utilized. Each item was scored for an overall satisfaction with available support (s). The questions include: "Whom can you really count on to distract you from your worries when you feel under stress regarding triathlons?", "Whom can you really count on to help you feel more relaxed when you are under pressure or tense from triathlons?", "Who accepts you totally, including both your worst and your best points when it comes to

triathlons?”, “Whom can you really count on to care about you, regardless of what is happening to you in triathlons?”, “Whom can you really count on to help you feel better when you are feeling generally down in the dumps regarding triathlons?”, and “Whom can you count on to console you when you are very upset about triathlons?” (Sarason et al., 1987). Overall satisfaction was scored for each item using a scale from 1= very satisfied to 5 =very dissatisfied. Each question had two parts. For the first part the participant thought about all the people they knew excluding themselves whom they could count on for help or support in the manner described. Part two involved circling how satisfied they are with the overall support. The satisfaction score was used to measure social support.

2.1.3 Procedures

The first phase consisted of contacting local triathlon clubs in the mainland and Vancouver Island. Directors, and/or head coaches at each club were contacted to introduce the study and receive permission to approach participants in the clubs. Introductory letters as well as consent forms were sent to the club directors of all potential participants. The letter explained the significance and purpose of the study and requested the triathletes' participation. All participants received a cover letter and signed a consent form (see appendix D). Participants were told that they would be able to withdraw at any time during the research without negative consequences and confidentiality was assured.

At regular practices, participants were invited to participate in the study. Following a brief explanation of the study purpose, participants were given an informed

consent form and a survey pack containing the measures. The survey package was also given out at race package pick-ups for the UBC triathlon, Delta Triathlon as well as the North Shore Sprint Triathlon and the Triathlon Expo held at the Roundhouse Community Center in Vancouver. The researcher was present to answer all questions related to the study upon delivery. Individuals received a pre-stamped and pre-addressed envelope with the survey pack so they could fill out the questionnaire at their personal convenience. Some questionnaires were also sent and received via email as the participants lived in different provinces or countries.

After a couple of weeks, parts of the questionnaire were reduced as many participants were not returning the survey package. Changes were made in the Sports Experience and Training section. These changes included:

- a) Questions 8 through 11 were omitted.
- b) The typical training week table was deleted.
- c) The practice history for biking, swimming and running separately was cut down and called triathlon history where all training was amalgamated into one table.
- d) Finally, the periodization of training section was re-worded into an easier to follow format (see Appendix E).

The questionnaire booklet took approximately 15 to 35 minutes to complete depending on the length of the participant's background in the sport of triathlon. A summary of the results is available to all participants upon request.

2.1.4 Data Analysis

In the interest of simplicity and clarity, on all charts and tables, the following codes were used for the measured variables in this study:

Sport Commitment	COMMIT
Enjoyment	ENJOY
Involvement Alternatives	ALT
Involvement Opportunities	OPPORT
Social Constraints	CONSTRAINT
Social Support	SUPPORT
Personal Investment	INVEST
Behaviour (current hours per week of training)	BEHAV

Prior to conducting all analyses, the data was screened for missing data and outliers. Participants who had missing data were excluded from analyses involving those items. Normality was examined by examining the data distribution and skewness and kurtosis statistics. Descriptive statistics, means and standard deviations, were computed for all variables. Scale reliabilities were examined using Cronbach's alpha.

A multi-step process was used to analyze the hypotheses. First, the assumptions of linear regression were examined such as skewness, kurtosis and possible outliers. Second, simple correlations among the variables for the whole sample and for males and females separately were examined. Third, gender differences in mean levels of study variables were examined using multivariate ANOVA. Fourth, the direct effects model was examined by the use of multiple regression. This was conducted for the whole sample and for males and females, separately. Fifth, the mediator model was examined by hierarchical multiple regression. The mediation model assumed the following.

1. Enjoyment was a significant predictor of commitment and was a stronger predictor of commitment than the other sport commitment variables.
2. All other sport commitment model variables are significantly related to enjoyment

3. That after controlling for the effect of enjoyment, the effects of the other sport commitment variables on commitment are attenuated (partial mediation) or extinguished (full mediation). Tested in a multiple step process: first, enjoyment was entered, followed by the other predictors.

The level of significance for all tests was set at $p < .05$ prior to analysis. The data were analyzed using SPSS version 12.0.

CHAPTER 3

3.1 RESULTS

3.1.1 Scale Reliabilities

Reliabilities were acceptable for all scales (see Table 2) and was similar to data from previous research with the exception of the involvement opportunities scale (Carpenter & Coleman, 1998; Scanlan, Carpenter et al., 1993). Involvement opportunities had a Cronbach's alpha of .69, slightly lower than the desired .7, but it was still considered acceptable.

3.1.2 Descriptive Statistics and Correlations

The means, standard deviations, and skewness are all shown in Table 2. None of the variables were significantly skewed but some had low variance. The mean for enjoyment ($M = 4.56$, $SD = .50$) using Scanlan's measures was quite high and negatively skewed and therefore was discarded from the study and only the PACES (Kendzierski & DeCarlo, 1991) scale was used to determine enjoyment. The mean using PACES scale was also moderately high ($M = 5.99$, $SD = .69$) but had a more varied distribution of scores compared to the Scanlan measure. In this study behaviour was measured as the current hours per week of training.

Table 2: Means and Standard Deviations for Sport Commitment and Behaviour

	Mean (x)	Standard Deviations (SD)	Skewness	Range	Scale Range	Alpha Coefficient
COMMIT	3.85	.820	-.54	1.5 - 5	1 - 5	.82
ENJOY	5.99	.69	-.943	56 - 126	18-126	.90
ALT	2.51	.78	.029	1 - 4.4	1 - 5	.87
OPPORT	3.30	.98	-.24	1 - 5	1 - 5	.69
CONSTRAINT	1.5	.65	1.59	1 - 4	1 - 5	.81
SUPPORT	4.20	.816	-1.48	1 - 5	1 - 5	.93
INVEST	3.91	.87	-.75	1 - 5	1 - 5	.74
BEHAV	11.58	6.64	1.74	0 - 50	NA	NA

In all cases, the correlations were examined using Pearson correlations. Since the direction of the correlations was expected prior to conducting the data analysis, it was decided that one-tailed Pearson correlations were appropriate. All correlations are shown in Table 3.

Table 3 : Pearson correlations between Sport Commitment, Behaviour, Sport Enjoyment, Alternatives, Opportunities, Investment, Social Support and Social Constraints

Variables	1.	2.	3.	4.	5.	6.	7.	8.
1.COMMIT								
2.BEHAV	.22*							
3.ENJOY	.42*	.25*						
4.ALT	-.60*	-.06	-.30*					
5.OPPORT	.57*	.23*	.28*	-.37*				
6 INVEST	.51*	.55*	.25*	-.22*	.43*			
7.SUPPORT	.20*	.00	.13	-.15	.22*	.04		
8.CONSTRAINT	-.10	.06	-.13	.28*	.16*	.19*	-.09	

*p < .05 (one-tailed)

Sport enjoyment, opportunities, personal investments and social support are significant and positively correlated to sport commitment whereas involvement alternatives is significant and negatively correlated to sport commitment. Social constraint is not significantly correlated to sport commitment.

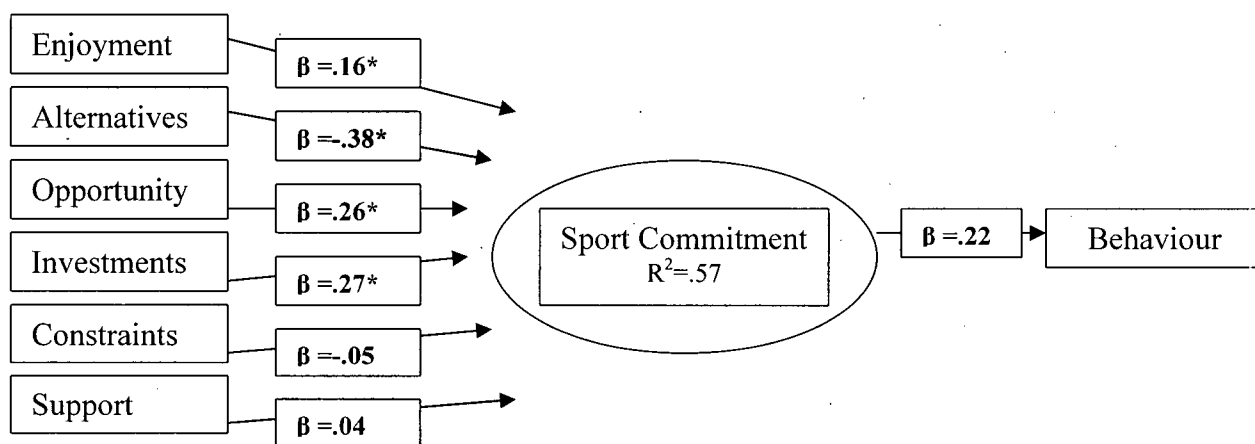
Behaviour is weakly correlated to sport commitment. The behaviour measure used in the analysis was current hours of practice per week. Total hours of practice was also calculated as a possible behaviour measure but did not fit the temporal course of the study. Questions related to sport commitment and triathlons were asked in a present time framework whereas total hours of practice included past behaviours as well as current behaviours. The next sections will describe the results found according to the hypotheses stated above.

3.1.3 Testing the Hypotheses

This section will describe the relationships found within the expected models.

3.1.3.1 Sport Commitment/Predictor Variables Relationship

The first hypothesis according to the Sport Commitment Model stated that the determinants consisting of enjoyment, opportunities, investments, social support, social constraints and alternatives would predict psychological sport commitment. The multiple regression analysis found that sport enjoyment ($\beta = .16$), alternatives ($\beta = -.38$), opportunities ($\beta = .26$), and investment ($\beta = .27$) explained 57% of the total variance (see Figure 5). Social constraints and social support were not significant predictors of sport commitment. Therefore, the hypothesis was only partially supported.



* $p < .05$

Figure 5 Multiple Regression Analysis of Enjoyment, Alternatives, Opportunities, Social Constraints, Social Support and Investments for Prediction of Commitment

3.1.3.2 Sport Commitment/Actual Behaviour Relationship

The second hypothesis stated that psychological sport commitment would have a positive relationship with actual behaviour. Sport commitment predicted 4% of the total variance of current hours of practice per week. Sport commitment ($\beta = .22$, $p < .05$) was a weak significant predictor of sport behaviour. Although the hypothesis was supported, the effect size was very small.

3.1.3.3 Enjoyment as a Mediator

The third hypothesis stated that sport enjoyment would act as a mediator between the other determinants and psychological sport commitment. Enjoyment was a significant predictor of sport commitment ($\beta = .43$) when entered into the regression analysis first, predicting 18% of the total variance of sport commitment (see Figure 7). Enjoyment was not, however, the strongest predictor of sport commitment. The strongest predictor was alternatives ($\beta = -.38$). Investments, opportunities and alternatives were significantly

related to enjoyment but personal investment was the sole predictor of sport enjoyment ($\beta = .18$), predicting 13.1% of the total variance of sport enjoyment (see Figure 8).

Using a multiple step process, enjoyment was entered first followed by the other predictors. The results showed that enjoyment was significant when used as a mediator in the sport commitment model, but the model was very weak. The other variables accounted for 39% additional variance in predicting sport commitment. According to this data, the mediational model is inferior to the direct effects model (see Figure 9).

STEP 1

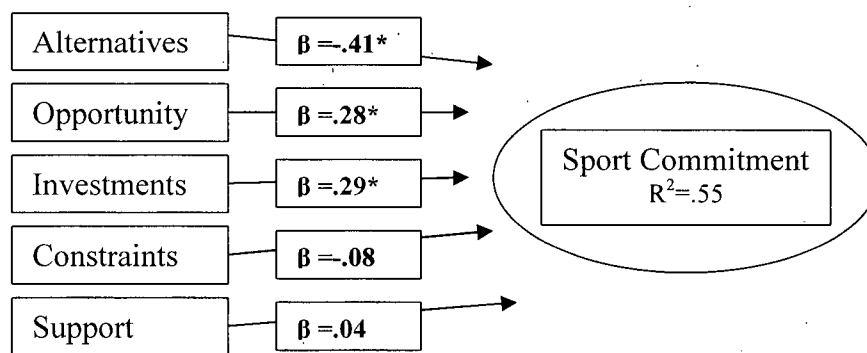


Figure 6 STEP 1: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator

STEP 2

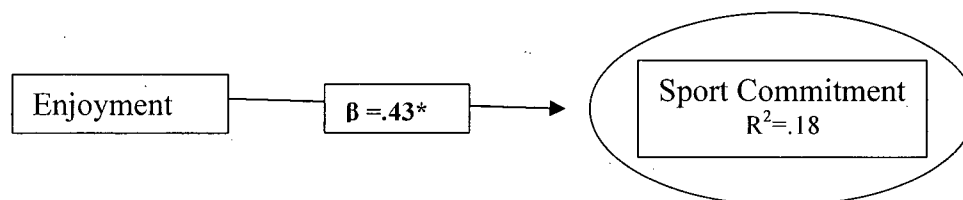


Figure 7 STEP 2: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator

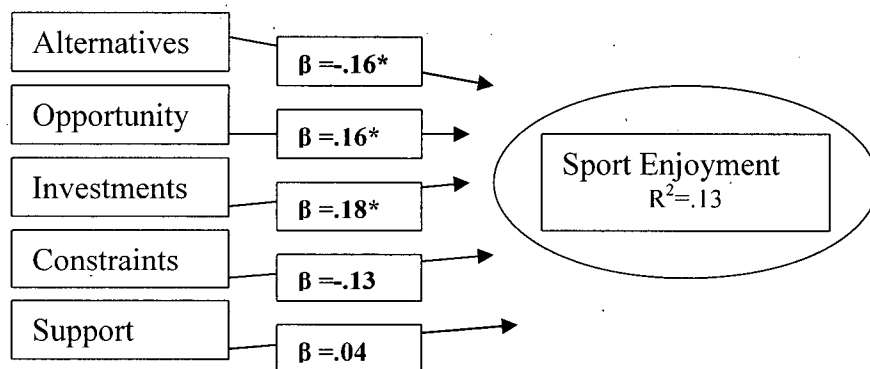
STEP 3

Figure 8 STEP 3: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator

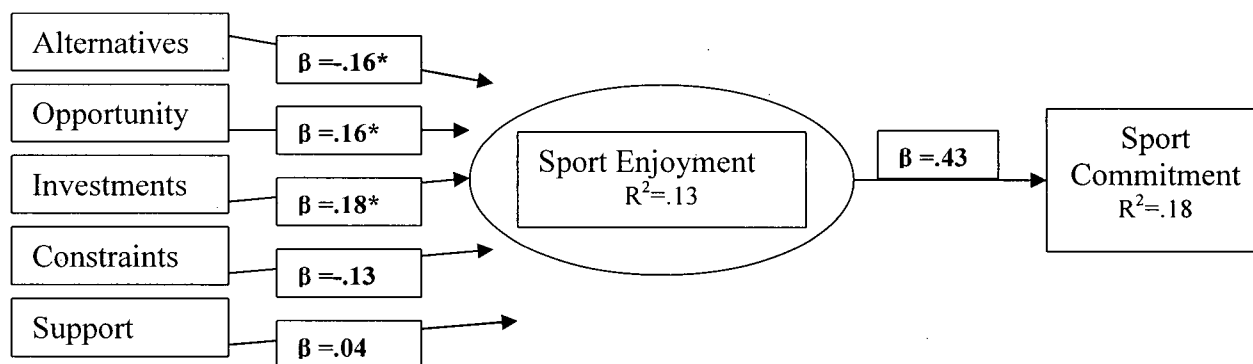
STEP 4

Figure 9 STEP 4: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator

3.1.3.4 Gender: Sport Commitment/Predictor Variables Relationship

The means, standard deviations, and skewness showing gender differences are all shown in Table 4.

Table 4: Means and Standard Deviations for Gender Separated Sport Commitment and Behaviour

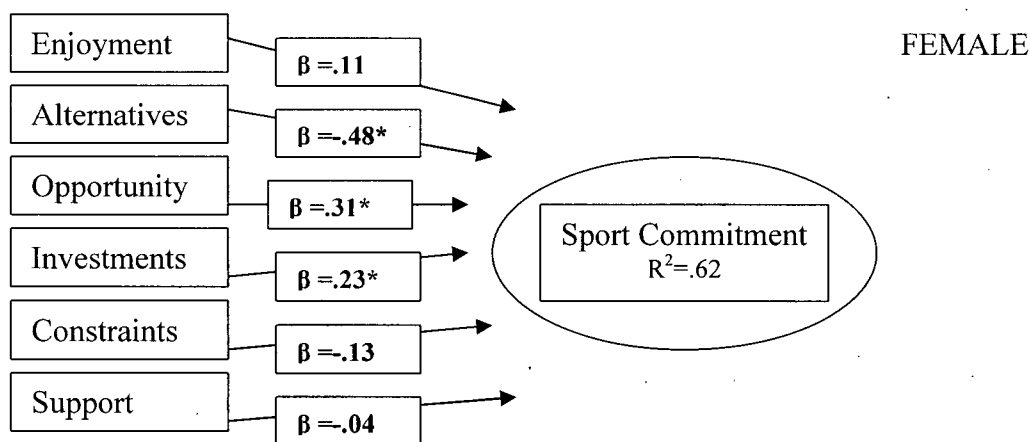
	Mean (X)	Standard Deviation (SD)	Skewness	Range	Scale Range	Alpha Coefficient
COMMIT	F =3.9 M=3.8	F =.82 M=.82	F =-.35 M=-.75	2-5 1.5-5	1 - 5	F =.82 M=.83
ENJOY	F =108.8 M=106.7	F =13.4 M=11.3	F =-1.4 M=-.19	56-126 81-126	1 - 7	F =.90 M=.85
ALT	F =2.4 M=2.6	F =.79 M=.76	F =.07 M=.02	1-4 1-4.4	1 - 5	F =.88 M=.85
OPPORT	F =3.5 M=3.1	F =1.0 M=.90	F =-.46 M=-.10	1-5 1-5	1 - 5	F =.71 M=.65
CONSTRAINT	F =1.6 M=1.5	F =.70 M=.59	F =1.7 M=1.3	1-4 1-3.4	1 - 5	F =.85 M=.76
SUPPORT	F =4.3 M=4.1	F =.77 M=.86	F =-1.4 M=-1.5	1-5 1-5	1 - 5	F =.92 M=.93
INVEST	F =4.0 M=3.8	F =.78 M=.95	F =-.70 M=-.68	1.67-5 1-5	1 - 5	F =.73 M=.74
BEHAV	F =11.4 M=11.8	F =6.9 M=6.4	F =2.7 M=.40	0-50 0-32	NA	NA

It was hypothesized that there would be no gender differences for mean levels in the variables. A MANOVA analysis showed a significant gender difference existed, $F(9,129) = 2.07$, $p < .05$. Follow-up ANOVA analysis found that only involvement opportunities showed a significant difference between genders, $F(1,142) = 5.36$, $p = .02$.

It was also hypothesized that there would be no gender differences in the prediction of sport commitment. Correlation and multiple regression analysis further exemplified differences among gender. When looking at the female triathletes, sport commitment was correlated to enjoyment ($r = .33$), alternatives ($r = -.68$), involvement opportunities ($r = .53$), social constraints ($r = -.26$), and personal investments ($r = .40$). A

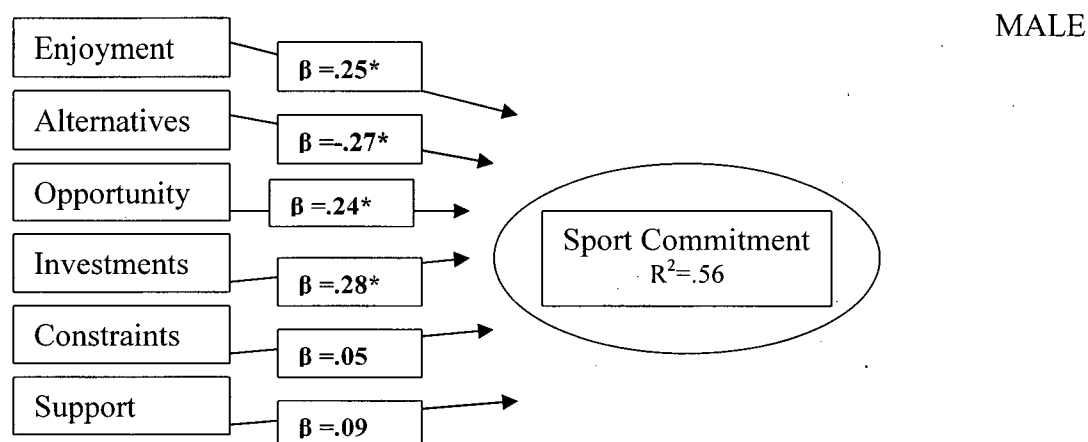
multiple regression equation found that alternatives ($\beta = -.48$), opportunities ($\beta = .31$) and investments ($\beta = .23$) were significant individual predictors, accounting for 62% of the total variance of sport commitment (see Figure 10). Enjoyment was not a significant predictor of sport commitment for female participants.

For males, sport commitment was significantly correlated to enjoyment ($r = .54$), alternatives ($r = -.52$), opportunities ($r = .62$) and personal investment ($r = .61$). A multiple regression equation found that enjoyment ($\beta = .25$), alternatives ($\beta = -.27$), opportunities ($\beta = .24$) and investments ($\beta = .28$) predicted 56% of the total variance of sport commitment for males (see Figure 11). Unlike the female participants enjoyment was a significant predictor of sport commitment for males.



* $p < .05$

Figure 10 FEMALE: Multiple Regression Analysis of Enjoyment, Alternatives, Opportunities, Social Constraints, Social Support and Investments for Prediction of Commitment



* $p < .05$

Figure 11 MALE: Multiple Regression Analysis of Enjoyment, Alternatives, Opportunities, Social Constraints, Social Support and Investments for Prediction of Commitment

The hypothesis concerning gender was not supported in this study. Results have displayed differences for females and males for correlation and prediction variables in the sport commitment model.

3.1.3.5 Gender: Sport Commitment/Behaviour Relationship

For female triathletes, sport commitment was not a significant predictor for behaviour ($\beta = .10$). Unlike their female counterparts, males showed a significant relationship between sport commitment and behaviour ($\beta = .37$), accounting for 12% of the total variance of behaviour. The hypothesis was not supported, as gender differences between the relationship of sport commitment and behaviour exist.

3.1.3.6 Gender: Behaviour/Predictors Relationship

Personal investment was the only significant correlate to sport behaviour ($r = .48$; $\beta = .46$) for female triathletes, predicting 24% of the total variance. For males, behaviour was significantly correlated to personal investments ($r = .64$), involvement opportunities ($r = .28$), and enjoyment ($r = .35$). A multiple regression analysis found that personal investment was the sole predictor of sport behaviour ($\beta = .64$) and predicted 39% of the total variance of sport behaviour. For both females and males personal investment was the only variable to predict behaviour. The hypothesis referring to gender differences was not supported, as gender differences between the relationship of the predictor variables and behaviour exist as investment was a larger predictor of sport behaviour for males than females.

3.1.3.7 Gender: Enjoyment as a Mediator

The third hypothesis stated that sport enjoyment would act as a mediator between the other determinants and psychological sport commitment. A separate regression analysis was done for females and males. Enjoyment was a significant predictor of sport commitment for females ($\beta = .33$) when analyzed first in the regression analysis, predicting 9% of the total variance of sport commitment (see Figure 13). Enjoyment was not a significant predictor when analyzed with the other variables ($\beta = .11$), in result not being the strongest predictor of sport commitment (see Figure 15). The strongest predictor of sport commitment was alternatives ($\beta = -.48$). None of the sport commitment model variables were significantly related to enjoyment (see Figure 14). Using a multiple step process, enjoyment was entered first followed by the other predictors; results showed

that enjoyment was non-significant when used as a mediator in the sport commitment model (see Figure 15). The hypothesis that stated sport enjoyment would act as a mediator between the other determinants and psychological sport commitment was not supported for the female participants.

Enjoyment was a significant predictor of sport commitment for males ($\beta = .57$), predicting 31% of the total variance of sport commitment but was not the strongest predictor of sport commitment (see Figure 13). The strongest predictor of sport commitment was personal investments ($\beta = .28$). Personal investments ($\beta = .27$) and alternatives ($\beta = -.33$) were the sole predictors of sport enjoyment, predicting 23.5% of the total variance of sport enjoyment (see Figure 14). All other sport commitment model variables were not significantly related to enjoyment. Using a multiple step process, enjoyment was entered first followed by the other predictors; results showed that enjoyment was weakly significant when used as a mediator in the sport commitment model (see Figure 15). The hypothesis that stated sport enjoyment would act as a mediator between the other determinants and psychological sport commitment was weakly supported for the male participants. The direct effect model is clearly a superior model for both females and males.

Caution is warranted in interpreting gender differences in this study due to a small number of participants. The analysis has weak power because of a small sample size, therefore increasing the chance of making type II errors.

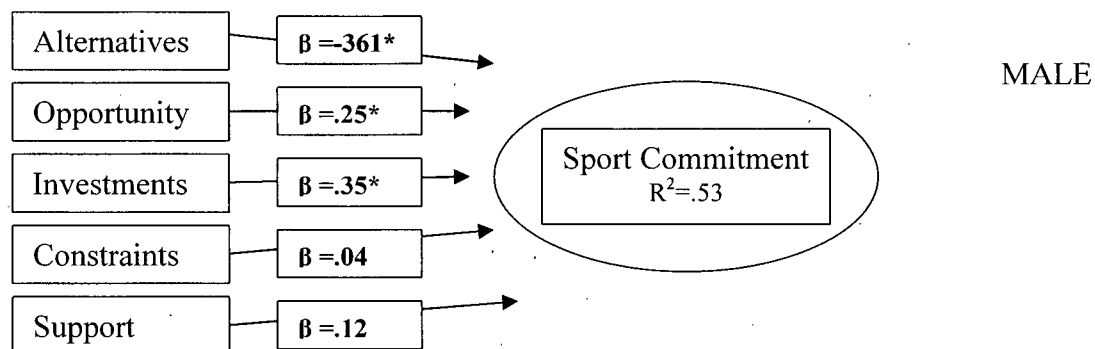
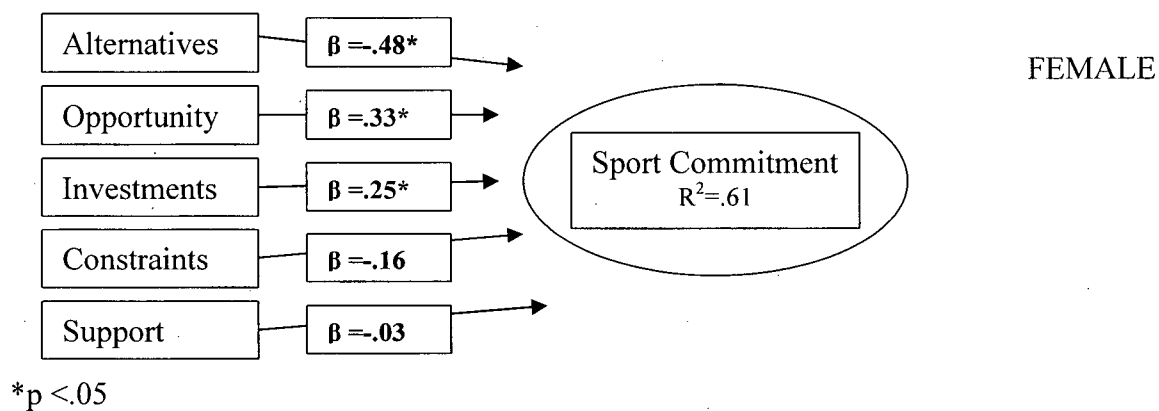
STEP 1

Figure 12 STEP 1: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator Separately for Females and Males

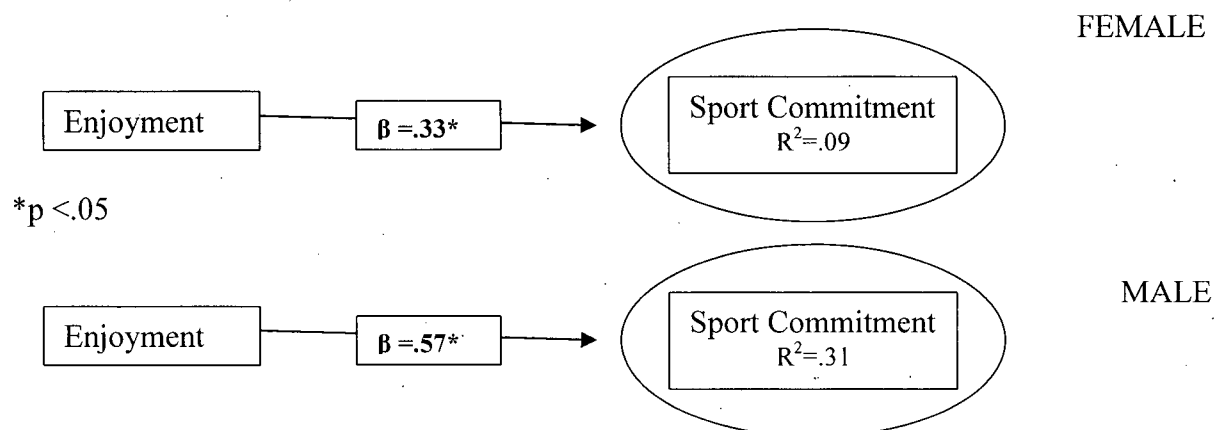
STEP 2

Figure 13 STEP 2: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator Separately for Females and Males

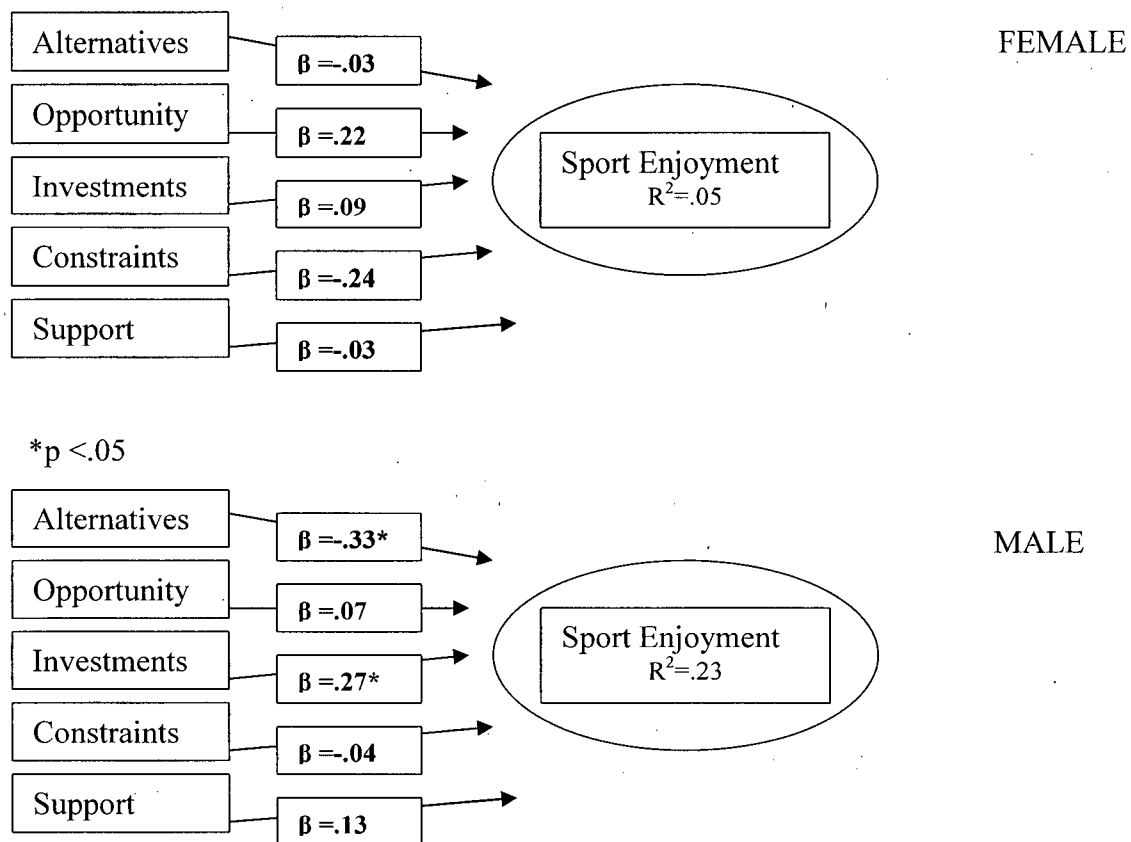
STEP 3

Figure 14 STEP 3: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator Separately for Females and Males

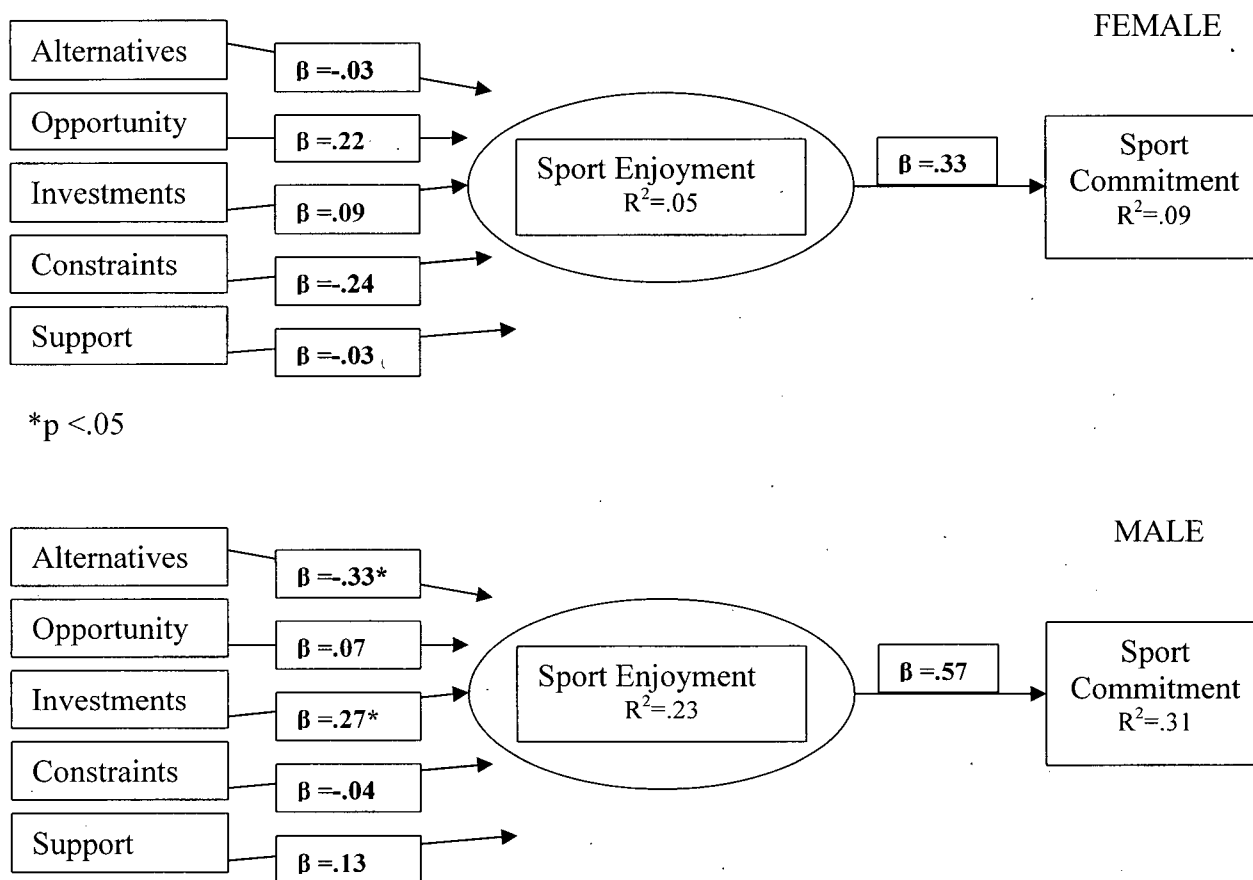
STEP 4

Figure 15 STEP 4: Hierarchical Regression Analysis Predicting Enjoyment as a Mediator Separately for Females and Males

CHAPTER 4

4.1 DISCUSSION

This research on two sport commitment models revealed important findings. This research is unique in that it not only examined adults in an individual sport but also explored the effectiveness of the enjoyment variable, gender differences, and possible behavioural links within the model. By investigating the efficacy of the models of sport commitment, the predictors of sport commitment can be identified in addition to the processes by which the models act can be better understood. Some key findings included the lack of evidence for a mediational model, evidence for the direct effect model for key predictors, evidence for gender differences in the model, and a weak link between commitment and training behaviour. The ramifications of these findings will be discussed.

A lack of evidence for the mediational model questions the assertion that sport enjoyment is the most important predictor of sport commitment (Weiss et al., 2001). Enjoyment is still influential for commitment (at least for males) but there are also other essential variables, which are not moderated by enjoyment such as the opportunities received, the investments put in, and the number of other attractive alternatives. Further, social constraint was not a predictor variable for sport commitment, a finding that is consistent with recent work (Scanlan, Russell, Beals et al., 2003). Individuals may not respond or not receive pressure from significant others to the necessary degree that it would affect sport commitment. The research also indicated that there was only a weak relationship between sport commitment and training behaviour. Furthermore, this study

found evidence for gender differences in predicting sport commitment. The above outcomes will be addressed in more depth in the following sections of the discussion.

4.1.2 The Sport Commitment Model

The Sport Commitment Model proved to be a significant model for adult age group triathletes. Findings both support and broaden previous Sport Commitment Model research. Partial support was shown for the determinants involved in predicting sport commitment within the original model developed by Scanlan and colleagues (Scanlan, Carpenter et al., 1993). There were also important gender differences in the Sport Commitment Model.

Similar to previous studies, sport investment, sport enjoyment, involvement opportunities, alternatives and social support were significantly correlated with sport commitment. The model's components accounted for 56.6% of the total sport commitment variance. The ability of the variables to predict a large portion of data is similar to previous work by Carpenter et al., (1993), Carpenter and Coleman (1998) and Weiss et al., (2001).

Carpenter found that certain social support, such as parental support are significant predictors of sport commitment but have yet to find significance in the model (Carpenter and Coleman, 1998). In this study social support showed a weak correlation to sport commitment ($r = .202$) and a non-significant relation to sport enjoyment. These results differ from those observed in Scanlan, Russell, Beals et al's (2003) study with elite adult rugby players. Although it was a qualitative study it did portray the importance

these players felt that social support played for their commitment to rugby. Differences may have resulted in the difference of playing level. The rugby players were playing at the highest level, practicing at a higher intensity and for more hours and constantly playing in the public eye. They may have had different needs and support than the triathletes who participated in this study.

In the past, there has been measurement difficulty with the personal investments construct, specifically the question that related to money (Scanlan, Carpenter et al., 1993). When studying youth and adolescents, the money item did not fit with the other personal investments items of time and effort. In this study, personal investment was one of the strongest variables that predicted sport commitment ($r = .51$). In past studies, the only population studied was that of children and adolescents, for whom money was not something they personally owned and therefore more difficult to evaluate than for adults. In Wilson's and colleagues (2004) study looking at adult exercisers, personal investment was also one of the strongest predictors of exercise commitment ($r = .67$).

Social constraints were not related to sport commitment in this study. This is similar to past results that found little or no relationship between social constraints and sport commitment (Scanlan, Carpenter et al., 1993). This non-significant relationship could be because these adults did not feel pressured to continue their sport involvement. The lack of significance may be related to the relevance of social constraints to the adult triathletes surveyed. The overall mean score was 1.5 and 77% of the triathletes had scores of <2.00 on the 5-point scale. The negative association between social constraints and sport commitment is opposite to original predictions but similar to past studies (Carpenter

et al., 1993). Scanlan, Russell, Beals et al (2003) has suggested that it might be best removed from the model.

Involvement alternatives ($r = -.60$) was the strongest predictor of sport commitment in this study, indicating that the triathletes had little desire to be involved in other activities compared to triathlons, increasing their level of sport commitment. These results differ from past studies, which largely looked at children and adolescents. Children have more time and opportunities to try a variety of activities, making it more difficult to decrease the attractiveness of other sports or activities. As well, the sport of triathlon is composed of three different sports that adds to variety and may decline the wish to do other sports.

Involvement opportunities has also emerged as one of the strongest predictors of sport commitment ($r = .57$). According to the results, these triathletes gain many valuable opportunities through their involvement in triathlons. Some opportunities that triathletes may gain include fitness, time management skills, travel, opportunity to race, meet others involved in triathlons, and a chance for mastery.

4.1.3 Enjoyment and Sport Commitment

Although enjoyment and commitment were significantly correlated, enjoyment was not the strongest predictor of commitment in the regression model ($\beta = .16$). This finding is inconsistent with previous work. One reason for the inconsistency is that previous studies used a measure constructed by Scanlan and colleagues. This scale was never subjected to detailed psychometric evaluation. The items on the measure are very similar, except that a key phrase is changed (i.e., do you enjoy, do you have fun). When the enjoyment measure from previous studies is examined, it is clear that the scale has

measurement properties that make it undesirable for regression analysis. Typically the mean is very high, with limited between subject variance. These properties are likely to produce spurious results. In the present study, the PACES measure was used as an indicator of enjoyment. The data shows that the participant's mean enjoyment was moderately high (between 5 & 6 on a 7 point scale) and has a good distribution of scores.

Scanlan and colleagues consistently portray enjoyment of sport as a vital aspect of sport commitment but there are contrary views. Ericsson and colleagues suggest that deliberate practice and training is not necessarily enjoyable. In Ericsson et al.'s original study (1993), they found that violinists' and pianists' activities related to practice alone were not inherently enjoyable. The contrasting views on sport enjoyment between Scanlan and Ericsson may lie in the different way enjoyment is perceived. It is difficult to assess exactly what aspect of the sport, or at what specific time period of involvement, is enjoyable or not. For some athletes, the feeling of satisfaction from accomplishing the task may override any feelings of displeasure.

Enjoyment may also be viewed as an outcome of sport commitment in addition to being a predictor of commitment. An athlete may participate in an activity and view certain aspects of the activity as enjoyable. Performance gains and rewards tend to increase enjoyment in a particular activity. However, with these gains, athletes might set higher goals (Locke & Latham, 1990). Since satisfaction and enjoyment are linked to goal achievement, it might be more difficult for athletes to always enjoy sport. There are also more sources of enjoyment beyond those stated in the sport commitment model such as perceived competence, achievement recognition, performance recognition, and

intrinsic motivation (Crocker et al., 1995; Scanlan, Carpenter et al., 1993; Scanlan & Ravizza, 1989).

One reason enjoyment might not be a good predictor of sport commitment is that athletes, especially volunteers for a study, typically report high levels of enjoyment. The truncated range of scores could be the results of the participants being volunteers still involved in the sport of triathlon, and therefore more likely to be enjoying the sport. A non-volunteering group of triathletes or ex-triathletes who may have dropped out of the sport may have lower levels of enjoyment allowing for a larger variance on the enjoyment scales. An alternative research design might be necessary to determine the importance of enjoyment. Since sport commitment is a measure of desire to continue in sport, it would be fruitful to use a known group difference design. This design would compare those who have left a sport to those still continuing.

The Sport Commitment Model has been examined mostly with youth participants. Enjoyment may have been a good predictor when studying adolescents but may not have been a proper indicator of commitment for an adult population. In past literature on commitment, satisfaction rather than enjoyment has been shown to be a major predictor of commitment (Rusbult, 1980). Satisfaction is a key outcome of goal attainment. Future research should study satisfaction as a construct of commitment in adults.

4.1.4 Mediation Sport Commitment Model

The mediational model of sport commitment failed to be a better model than the direct effects model. Indeed, enjoyment did not meet many of the criteria required to demonstrate mediation. The direct effects model was a much stronger fitting model. This finding was not consistent with work by Weiss et al (2001) who found that enjoyment was the key player in predicting sport commitment. It is possible that statistical artifacts contributed to the findings of Weiss and colleagues.

4.1.5 Behaviour and Sport Commitment

A weak positive relationship was shown between actual behaviour and sport commitment. Few studies have looked at the relationship between psychological sport commitment and actual behaviour. In this study, behaviour was measured by the participant's current hours of practice per week. Sport commitment only predicted 4% of the total variance of actual behaviour. Studies examining commitment and behaviour relations have typically found weak to moderate effects. In Wilson and colleagues (2004) study the model accounted for 12% of the variance in exercise behaviour. One of the challenges for assessing behaviour in the sport commitment model is determining an appropriate behavioural indicator. Future research should consider measuring a behaviour that is more closely linked to the "desire to continue in sport". These behaviours include examining a stay/leave behaviour.

There are a number of factors that could have affected the validity of the behavioural measure. These include

- Most of the questionnaires were handed out at the beginning of triathlon season or right before the beginning of the season. The time of data collection may affect the amount of training and the ability to answer questions concerning training behaviour. At the beginning of the season athletes are less aware of their patterns, may have less information and knowledge compared to later in the season.
- The behaviour assessment forced the participants to recall from memory how they train and therefore may not have been the most accurate measure for behaviour. In past studies athletes tended to overestimate practice time when compared to actual practice time taken from diary entries (Helsen et al., 1998). Therefore, the accuracy of time estimation actually spent in practice may vary and cause the results to differ.

4.1.6 Gender Differences

Gender differences emerged in the relationships among the Sport Commitment Model constructs. Descriptive statistics revealed no difference between genders for individual variables. The means, standard deviations and ranges were similar. The difference, however, emerged in how specific variables were related to enjoyment and commitment. Specifically, the direct effects model suggested that alternatives, investments and opportunities were significant predictors of sport commitment for both genders. However, enjoyment was not a significant predictor for the female participants.

One needs to be careful when interpreting the relationship between enjoyment and commitment in females. When enjoyment was examined as a single predictor for sport commitment for females, it was a significant but weak predictor. When entered along with the other sport commitment predictors, it failed to be a significant individual predictor. This occurred because enjoyment shared variance with the other predictors, and the other predictors (alternatives, opportunities and investments) were more strongly related to commitment. Due to co variation of the other significant predictors of commitment, enjoyment's weak relationship was cancelled when the model was analyzed using multiple regression. There were also important gender differences in the prediction of training behaviours. For the female participants, sport commitment was not a significant predictor of behaviour.

The gender differences should be viewed with caution. The specific sample sizes may have produced unstable equations. Due to the lack of past research in this area it is difficult to explain the gender differences. Future research in the area of gender and sport commitment needs to be addressed in order to further explain these differences.

4.2 LIMITATIONS

This study had a number of limitations such as the demographics of the target populations, memory recall, the procedures, the sport, and the use of volunteers as participants.

Generalizability of the study may be limited due to the sample. The results of the study are appropriate for a population of triathletes over the age of 19 years. Thus, it would be incorrect to try to generalize these findings to a different age group or different sport. The mean number of the participant's involvement in triathlons (years) was 4.6

years. Hence, most people that sent back the questionnaire were fairly new participants to the sport of triathlon. These triathletes may be a little more motivated to get involved in all aspects of the sport therefore more willing to take the time to fill out a questionnaire survey on triathlons. The mean age of the participants was 36.9 years old. At this age most participants were full time employees, working an average of 40 hours a week. This also exemplifies the most popular age groups of triathletes racing in triathlons. Most athletes reach their peak performance between this age range and many do not begin training for triathlons until this age. Interestingly, this is the age range where many families have children but only 29% of the participants in this study have children.

Memory recall is one of the major limitations associated with training behaviour assessment. Athletes were asked to recall their training behaviours from the past year, last year and three year increments until they first began training for triathlons. Some people have had many years of experience racing and training in triathlons and had to largely estimate what they thought they had accomplished in the past years. As well some of the newer triathletes have not yet discovered a proper training pattern and therefore found it difficult to complete the periodization section of the questionnaire.

Different length of races may affect training and the commitment required. Triathlon consists of distances varying from short (400m swim, 10km bike, 2.5km run) to Ironman (3.8km swim, 180km bike, 42km run). The amount and type of training can vary depending on the distance one is training to race. In this study participants from all distances and styles of triathlons were accepted, which may have affected the results of the study when looking at behaviour and commitment. Athletes training for Ironman

distances require many more hours of training in order to complete training miles when compared to those racing in the sprint or Olympic distances.

The length of the questionnaire may have affected the response rate for this study. Due to time constraints, the questionnaires were handed out with pre-addressed and pre-stamped envelopes so the participants could fill out the questionnaire at their own convenience. This may have been a limitation to the study because many triathletes did not return the questionnaire. Triathletes lost the questionnaire, forgot to fill-it or to send it out, or had no desire to fill it or send it out. It is possible that more triathletes may have been more inclined to fill out and return the questionnaire if it were shorter in length.

Behaviour is difficult to assess as people's lives are constantly changing, due to possible injuries, traveling, and family. Question 4 of Part II of the Triathlon Questionnaire, many people stated that when injured they may stop one or two of the three disciplines rather than all three which is a unique aspect of the sport of triathlon compared to a single disciplined sport. This is a positive attribute concerning the sport of triathlon, when an athlete is injured one can still take part in some aspect of the sport due to three separate disciplines.

The time of year in which the questionnaire is handed out may affect behaviour results. Triathletes may use a periodized training program that is split into different seasons throughout the year. The amount and intensity of training may vary between seasons. Athletes tend to train the least for their particular sport throughout off training and the most throughout pre-race and race seasons. In this study the mean hours per week of training in the base season was 8.9 hrs and the mean intensity was 1.5 on a three point scale. The pre-race and race seasons had similar hours per week of training (12) and an

intensity of 2.5. Throughout the off-season triathletes trained 7.3 hours per week at an intensity of 1.3. The mean number of races the triathletes in this study participated in was 4 races per year. The questionnaires were handed out during most of the triathlete's pre-race season, which may have affected the results received from the participants.

The results of this study were specific to a population of adult age group triathletes. It is not reasonable to generalize these results to other populations. One limitation is that this study is based on a sample of triathletes who have volunteered to participate in this research study. It is possible that the volunteers differ from non-volunteers. Those who volunteer to fill out the questionnaire on their own time may be more likely to enjoy and be committed to sport than those who do not want to participate. Despite some limitations the study proved to display significant results in the area of sport commitment.

4.3 FUTURE DIRECTIONS

The low response rate was the major barrier encountered during data collection for this study. Most triathletes did not return the questionnaires that were handed out. Coming up with ways to improve the athlete's motivation and desire to complete and send the questionnaire would be an asset for any research study. A more individualized and personalized approach with the athletes might be a better way to gain the athletes' interest to various projects and would eventually facilitate data collection. Including a draw prize for incentive may have increased the response rate as well. Having the questionnaire on line may have increased the response rate by allowing easier access to more triathletes, which may have been more convenient for them to fill it out.

Furthermore, gathering data from different sports might be an interesting way to look at the influence of the type of sports on various psychological variables. The duration of the event, the complexity of the task, and the environment might all be factors influencing a person's training behaviours and commitment levels, which were not controlled for in the current study. As well, looking specifically at various distances of triathlon events may indicate different outcomes. Someone training for the ironman triathlon as compared to someone training for a sprint triathlon will endure different types of commitment (time, effort, money, support, opportunities).

Qualitative methods could be another positive strategy used in order to study commitment levels and its relationship to behaviour. Scanlan and colleagues used a qualitative process in analyzing the rugby and net ball players in New Zealand which revealed a more in depth understanding of the variables that play key roles in their commitment levels (Scanlan, Russell, Beals et al., 2003; Scanlan, Russell, Wilson et al., 2003). Qualitative methods could help identify the critical sources of commitment and the conditions that lead to enhancing ones commitment levels and improving training behaviours.

Results in this study have showed that enjoyment may not be the key variable in predicting levels of sport commitment for adult age group triathletes. Other predictors of sport enjoyment need to be identified in more concrete terms and examined for their predictive power. It is not fully understood how sources of sport enjoyment such as investments, opportunities, competence, and achievement affect sport enjoyment. Exploring this area in more depth with various samples, sports and scales may shed more insight on the value of enjoyment on this model.

4.4 CONCLUSION

The current study looked at the sport commitment model in adult age group triathletes. The model explained a significant portion of commitment variance and the important determinants of sport commitment. Not all variables in the model proved to be significant individual predictors of sport commitment. The results highlighted that although significant, enjoyment was not an essential predictor of sport commitment. As well, social constraint proved not to be a significant predictor of sport commitment. Another key finding included the superiority of the original sport commitment model to the mediational model. The low relationship between sport enjoyment, commitment and the other variables did not support the mediational model of sport commitment. It was difficult to measure actual behaviour of the triathletes, resulting in a weak relationship between sport commitment and behaviour. Finally, important gender differences were found in the prediction of sport commitment. Enjoyment and behaviour were the two most significant differences between males and females. It is now crucial to question whether enjoyment plays a significant role in sport commitment, evaluate variables that may predict actual behaviour and look further into gender issues in the area of sport commitment.

5.0 References

- Baker, J. & Sedgwick, W.A.(2005). Sport psychology library: Triathlon.
- Williamsburg, VA: Fitness Information Technology.
- Barrell, G., Chamberlain, A., John, E., Holt, T., & Mackean, J. (1989). Ideology and commitment in family life: a case study of runners. *Leisure Studies*, 8(3), 249-262.
- Becker, H.S. (1960). Notes on the concept of commitment. *American Sociological Review*, 66, 32-40.
- Brown, B.A. (1985). Factors influencing the process of withdrawal by female adolescents from the role of competitive age group swimmer. *Sociology of Sport Journal*, 2, 111-129.
- Brown, B.A., Frankel, B., & Fennell, M. (1989). Hugs or shrugs: Parental and peer influence on continuity of involvement in sport by female adolescents. *Sex Roles*, 20, 397-412.
- Carmack, M.A., & Martens, R. (1979). Measuring commitment to running: A survey of runner's attitudes and mental states. *Journal of Sport Psychology*, 1, 25-42.
- Carpenter, P.J. (1993). *Staying in sport: Young athletes' motivations for continued involvement*. Unpublished doctoral dissertation, University of California, Los Angeles.
- Carpenter, P.J. (1995). Modification and extension of the sport commitment model. *Journal of Sport and Exercise Psychology*, 17, S37.
- Carpenter, P.J., & Coleman, R. (1998). A longitudinal study of elite youth cricketers' commitment. *International Journal of Sport Psychology*. 29, 195-210.
- Carpenter, P.J., & Scanlan, T.K. (1998). Changes over time in the determinants of sport commitment. *Pediatric Exercise Science*. 10, 356-365.

- Carpenter, P.J., Scanlan, T.K., Simons, J.P., & Lobel, M. (1993). A test of the sport commitment model using structural equation modeling. *Journal of Sport & Exercise Psychology*, 15, 119-133.
- Chalip, L., Csikszentmihalyi, M., Kleiber, D., & Larson, R. (1984). Variations of experience in formal and informal sport. *Research Quarterly for Exercise and Sport*, 55(2), 109-116.
- Clingman, J.M., & Hilliard, D.V. (1988). Triathletes' Self-perceptions: To finish is to win. *Journal of Sport Behavior*, 40 (2), 89-98.
- Crocker, P.R.E., Bouffard, M., Gessaroli, M.E. (1995). Measuring enjoyment in youth sport settings: A confirmatory factor analysis of the physical activity enjoyment scale. *Journal of Sport and Exercise Psychology*, 17, 200-205.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334.
- Ericsson, K.A., Krampe, R., & Tesch-Romer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363-406.
- Evans, M. (2003). Triathlete's edge. Advanced training for performance. Champaign, IL: Human Kinetics, U.S.A.
- Farrell, D., & Rusbult, C.E. (1981). Exchange variables as predictors of job satisfaction, job commitment, and turnover: The impact of rewards, costs, alternatives and investments. *Organizational Behavior & Human Performance*, 27, 78-95.
- Guillet, E., Sarrazin, P., Carpenter, P.J., Trouilloud, D., & Cury, F. (2002). Predicting persistence or withdrawal in female handballers with social exchange theory. *International Journal of Psychology*, 37 (2), 92-104.

- Harris, J.C. (1984). Interpreting Youth Baseball: Player's understanding of fun and excitement, danger, and boredom. *Research Quarterly for Exercise and Sport*, 55, 379-382.
- Helsen, W.F., Starkes, J.L., & Hodges, N.J. (1998). Team sports and the theory of deliberate practice. *Journal of Sport & Exercise Psychology*, 20, 12-34.
- Hobson, W., Campbell, C., & Vickers, M. (2001). Swim, Bike, Run. Human Kinetics, U.S.A.
- Hodges, N.J., Kerr, T., Starkes, J.L., Weir, P.L., & Nananidou, A. (2004). Predicting performance times from deliberate practice hours for triathletes and swimmers: What, when, and where is practice important? *Journal of Experimental Psychology: Applied*, 10 (4), 000-000.
- Horn, T.(Ed.). (2002). *Advances in Sport Psychology*, Human Kinetics Publishers, Inc. U.S.A.
- Hunter, A. and Kirschbaum, E. (1985). Swim + Bike + Run: Triathlon-The Sporting Trinity. George Allen & Unwin Ltd. UK
- Kelley, H.H. (1983). Love and Commitment. In H.H. Kelley, E. Berscheid, A. Christensen, J.H. Harvey, T.L. Huston, G. Levinger, E. McClintock, L.A. Peplu, & D.R. Petersen (Eds) *Close Relationships* (pp.265-314). New York, NY: W.H. Freeman.
- Kelley, H.H. & Thibaut, J.W. (1978). Interpersonal relations: A Theory of Interdependence New York: Wiley.
- Kendzierski, D., & DeCarlo, K.J. (1991). Physical activity enjoyment scale: Two validation studies. *Journal of Sport and Exercise Psychology*, 13, 50-64.

- Lazarus, R.L. (1991). *Emotion and Adaptation*. New York, Oxford University Press.
- Locke, E.A., & Latham, G.P. (1990). A theory of goal setting & task performance. Prentice Hall, New Jersey.
- Rusbult, C.E. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of Experimental Social Psychology*, 16, 172-186.
- Rusbult, C.E. (1980b). Satisfaction and commitment in friendship, *Representative Research in Social Psychology*, 11, 96-105.
- Rusbult, C.E. (1983). A longitudinal test of the investment model: The development (and deterioration) of satisfaction and commitment in heterosexual involvements. *Journal of Personality and Social Psychology*, 45, 101-107.
- Rusbult, C.E., & Farrell, D. (1983). A longitudinal test of the investment model: The Impact of job satisfaction, job commitment, and turnover of variations in rewards, costs, alternatives and investments. *Journal of Applied Psychology*, 68, 429-438.
- Salancik, G.R. (1977). Commitment and the control of organizational behavior and belief. In B.M. Staw and G.R. Salancik (Eds), *New directions in organizational behavior*. Chicago: St. Clair Press.
- Sarason, I.G., Sarason, B.R., Shearin, E.N., & Pierce, G.R. (1987). A brief measure of social support: Practical and theoretical Implications. *Journal of Social and Personal Relationships*, 4, 497-510.
- Scanlan, T.K., Carpenter, P.J., Lobel, M., & Simons, J.P. (1993). Sources of enjoyment for youth sport athletes. *Pediatric Exercise Science*, 5, 275-285.
- Scanlan, T.K., Carpenter, P.J., Schmidt, G.W., Simons, J.P., & Keeler, B. (1993). An introduction to the sport commitment model. *Journal of Sport and Exercise*

- Psychology*, 15, 1-15.
- Scanlan, T.K., & Lewthwaite, R. (1984). Social psychological aspects of competition for male youth sport participants: I. Predictors of competitive stress. *Journal of Sport and Exercise Psychology*, 6, 208-226.
- Scanlan, T.K., & Simons, J.P. (1992). The construct of sport enjoyment. In G.C. Roberts (Ed.), *Motivation in sport and exercise* (pp.199-215). Champaign, IL: Human Kinetics.
- Scanlan, T.K., Simons, J.P., Carpenter, P.J., Schmidt, G.W., & Keeler, B. (1993). The sport commitment model: Measurement development for the youth-sport domain. *Journal of Sport and Exercise Psychology*, 15, 16-38.
- Scanlan, T.K., Stein, G.L., & Ravizza, K. (1989). An in-depth study of former elite figure skaters: II. Sources of enjoyment. *Journal of Sport and Exercise Psychology*, 11, 65-83.
- Scanlan, T.K., Russell, D.G., Wilson, N.C., and Scanlan, L.A. (2003). Project on elite athlete commitment (PEAK): I. Introduction and methodology. *Journal of Sport & Exercise Psychology*, 25, 360-376
- Scanlan, T.K., Russell, D.G., Beals, K.P., & Scanlan, L.A. (2003). Project on elite athlete commitment (PEAK): II. A direct test and expansion of the sport commitment model with elite amateur sportsmen. *Journal of Sport & Exercise Psychology*, 25, 377-401.
- Schmidt, G.W., & Stein, G.L. (1991). Sport commitment: A model integrating enjoyment, dropout, and burnout. *Journal of Sport and Exercise Psychology*, 8, 254-265.
- Simon, H.A., & Chase, W.G. (1973). Skill in chess. *American Scientist*, 61, 394-403
- Stevens, J. (1996). *Applied multivariate statistics for the social sciences*, (3rd ed.)

- Mahwah, N.J.: Lawrence Erlbaum Associates.
- Smith, R.E. (1986). Toward a cognitive model of athletic burnout. *Journal of Sport Psychology*, 8, 36-50.
- Thibault, J.W., & Kelley, H.H. (1959). *The social psychology of groups*. New York: Wiley.
- Tinley, S. (1998). Triathlon: A Personal History. Colorado: Pub Group West. U.S.A.
- Town, G.P. (1985). Science of triathlon training and competition. Champaign, IL: Human Kinetics Publishers.
- VanYperen, N.W. (1998). Predicting stay/leave behavior among volleyball referees. *The Sport Psychologist*, 12, 427-439.
- Weinberg, R. S., & Gould, D. (1995). *Foundations of Sport and Exercise Psychology*. Champaign, IL: Human Kinetics Publishers
- Weiss, M.R., & Ferrer-Caja, E. (2002). Motivational Orientations and Sport Behavior. In T. Horn (Ed), *Advances in Sport Psychology Second Edition*. Champaign, IL: Human Kinetics, U.S.A.
- Weiss, M.R., Kimmel, L.A., & Smith, A.L. (2001). Determinants of sport commitment among junior tennis players: Enjoyment as a mediating variable. *Pediatric Exercise Science*, 13, 131-144.
- Weiss, M.R., & Petlichkoff, C.M. (1989). Children's motivation for participation in and withdrawal from sport: Identifying the missing links. *Pediatric Exercise Science*, 1, 195-211.
- Weiss, W.M. & Weiss, M.R. (2003). Attraction and entrapment based commitment among competitive female gymnasts. *Journal of Sport and Exercise Psychology*, 25,

229-247.

Wilson, P.M., Rodgers, W.M., Carpenter, P.J., Hall, C., Hardy, J., & Fraser, S.N. (2004).

The relationship between commitment and exercise behavior. *Psychology of Sport and Exercise*, 5 (4), 405-421.

APPENDIX

Appendix A**PART I Demographics**

PART I Demographics

Please fill in the appropriate areas when necessary.

1. Gender

Please check which applies

☐ Female

☐ Male

2. Family

State relationship status

Example: Single, relationship, married, live-in partner

Circle correct answer

I have children

☐ Yes

☐ No

How many? What ages? _____

Partner engaged in triathlon

☐ Yes

☐ No

3. Occupation

What is your highest level of education? _____

Are you a student?

☐ Yes

☐ No

Are you a stay at home mother or father?

☐ Yes

☐ No

Are you currently employed?

☐ Yes

☐ No

If so, describe your occupation _____

Number of hours per week you work: _____

Appendix B

Part II Sport Experience and training

Part II Sport Experience and training

Triathlon Questionnaire

1. We would like to know your average time in the Olympic distance event this past season, as well as your best time ever in the event and the year this was achieved.

Average time past season: Best time ever: Year accomplished

Olympic

(1.5k/40k/10k)

- _____
- _____
- _____
2. In what year did you compete in your first triathlon? _____
3. In what year did you begin to train seriously for triathlons? _____
4. Over the course of your training for triathlon have there been time periods when you have had to stop training (due perhaps to injury/health) but then started again?
Yes / No (please circle). If yes, please give date(s) and duration(s) below?

5. Right now how many days a week do you train? _____ (is this typical? Y/N)
If not, what is typical for you _____
6. During your competitive season, in an average week, how many hours do you spend training? _____
7. On average how many times a year do you compete in a triathlon event? _____

Practice History Information

The next section will aid us in gaining information about your current training for triathlons as well as your sport history.

1. Please fill in age row first

TRIATHLON: PRACTICE SCHEDULE AND TRAINING HISTORY

	Now	Last yr.	>3yrs	>6yrs	>9yrs	>12yr	>15yrs	>18yr	>21yr	>23yr	Start Age
Age											
Hrs/wk											
Avg olympic race time											
Wks/yr. off											

Example: "Karen" is 32 years old and currently trains for about 10 hrs/week and takes about a week off/year from triathlon training. She started 7 years ago at the age of 25, so she fills in the boxes as far as 6 years ago (age 26 yrs) and puts her start age in the final column.

	now	Last yr.	3yr ago	6yr ago	9yr ago	>12 yrs	>15yrs	>18yr	>21yr	>23yr	Start Age
Age	32	31	29	26							25
Hrs/wk	10	10	8	8							12
Avg race time	2:45 min	2:50 min	2:55 min	3:00 min							3:15 min
Wks/yr off	1	3	20	20							2

*Hrs/wk is the number of hours on average you would train per week for that one-year period

**Wks/yr. off is the number of weeks total you had off that year of training for this event

PERIODIZATION OF TRAINING

We are interested in how you break up your year with regard to your triathlon season.

Season	* Average Hrs/ week	**Intensity of Training (Please Check)		
		Low	Mod	High
BASE (~Dec-Feb)				
PRE-RACE (~Mar-May)				
RACE (~June-Aug)				
OFF (~Sept-Nov)				

*indicate hours/week on average you would train for that month for each of the events

** for this section (intensity) please put a check mark in the box that is most appropriate for season.

Appendix C

PART III Sport Commitment

Sport Commitment Scale

1. How *dedicated* are you to participating/practicing triathlons?

1 2 3 4 5

Not at all
dedicated

Very dedicated

7. How *hard* would it be for you to quit participating in triathlons?

1 2 3 4 5

Not at all
hard

Very hard

13. How *determined* are you to keep participating in triathlons?

1 2 3 4 5

Not at all
determined

Very determined

19. What would you be willing to do to keep racing/training in triathlons?

1 2 3 4 5

Nothing

A lot of things

Enjoyment Scale

2. Do you *enjoy* participating in triathlons?

1	2	3	4	5
Not at all			Very much	

8. Are you *happy* participating in triathlons?

1	2	3	4	5
Not at all happy			Very happy	

14. Do you have *fun* participating in triathlons?

1	2	3	4	5
Not at all			Very much	

20. Do you *like* participating in triathlons?

1	2	3	4	5
Not at all			Very much	

PACES Enjoyment Scale

Please rate how you generally feel when you are participating in the sport of triathlon (please circle the appropriate response)

I enjoy it	1	2	3	4	5	6	7	I hate it
I feel bored	1	2	3	4	5	6	7	I feel interested
I dislike it	1	2	3	4	5	6	7	I like it
I find it pleasurable	1	2	3	4	5	6	7	I find it unpleasurable
I am very absorbed in this activity	1	2	3	4	5	6	7	I am not at all absorbed in this activity
Its no fun at all	1	2	3	4	5	6	7	Its a lot of fun
I find it energising	1	2	3	4	5	6	7	I find it tiring
It makes me feel depressed	1	2	3	4	5	6	7	It makes me feel happy
It's very pleasant	1	2	3	4	5	6	7	It's very unpleasant
I feel good physically while doing it	1	2	3	4	5	6	7	I feel bad physically when doing it
It's very invigorating	1	2	3	4	5	6	7	It's not at all invigorating
I am very frustrated by it	1	2	3	4	5	6	7	I am not at all frustrated by it
It's very gratifying	1	2	3	4	5	6	7	It's not at all gratifying
It's very exhilarating	1	2	3	4	5	6	7	It's not at all exhilarating
It's not at all stimulating	1	2	3	4	5	6	7	It's very stimulating
It gives me a strong sense of accomplishment	1	2	3	4	5	6	7	It does not give me any sense of accomplishment
It's very refreshing	1	2	3	4	5	6	7	It's not at all refreshing
I felt as though I would rather be doing something else	1	2	3	4	5	6	7	I felt as though there was nothing else I would rather be doing

Personal Investment Scale

3. How much of your *time* have you put into triathlons in your most recent competitive year?

1 2 3 4 5

No time

A lot of time

9. How much *effort* have you put into triathlons this season?

1 2 3 4 5

No effort

A lot of effort

15. How much of your own *money* have you put into triathlons this season for things like entrance fees or equipment?

1 2 3 4 5

No money

A lot of money

Social Constraints Scale

4. I feel I have to participate in triathlons so that I can be with my friends.

1 2 3 4 5

Not at all
True for me

Completely true
true for me

10. I feel I have to stay in triathlons so people won't be disappointed with me if I quit

1 2 3 4 5

Not at all
True for me

Completely true
true for me

16. I feel pressure from other people to participate in triathlons

1 2 3 4 5

Not at all
True for me

Completely true
true for me

21. I feel I have to participate in triathlons to please others.

1 2 3 4 5

Not at all
True for me

Completely true
true for me

24. I feel I have to stay in triathlons so that people won't think I'm a quitter.

1 2 3 4 5

Not at all
True for me

Completely true
true for me

Involvement opportunities Scale

5. Would you miss being a triathlete if you left the sport?

1

2

3

4

5

Not at all

Very much

11. Would you miss your coach (or equivalent)

1

2

3

4

5

N/A

Not at all

Very much

17. Would you miss the good times you have had participating in triathlons this season if you left the sport?

1

2

3

4

5

Not at all

Very much

22. Would you miss your friends in triathlons if you left the sport?

1

2

3

4

5

Not at all

Very much

Involvement Alternatives Scale

6. Compared to triathlons, there are other things I could do which would be more fun.

1 2 3 4 5

Not at all
True for me

Completely true
true for me

12. Compared to triathlons, there are other things I could do which would be more enjoyable

1 2 3 4 5

Not at all
True for me

Completely true
true for me

18. Compared to triathlons, there are other things I could do which would be more worthwhile

1 2 3 4 5

Not at all
True for me

Completely true
true for me

23. I would be happier doing something else instead of triathlons

1 2 3 4 5

Not at all
True for me

Completely true
true for me

25. I would like to do something else instead of triathlons

1 2 3 4 5

Not at all
True for me

Completely true
true for me

Social Support Scale

Each question has two parts.

1. For the first part think about all the people you know excluding yourself, whom you can count on for help or support in the manner described.

2. Then circle how satisfied you are with overall support.

	1	2	3	4	5
	very dissatisfied				very satisfied
1. A person or people whom you can really count on to distract you from your worries when you feel under stress regarding triathlon training?	1	2	3	4	5
2. A person or people whom can you really count on to help you feel more relaxed when you are under pressure or tense from triathlons?	1	2	3	4	5
3. Who accepts you totally, including both your worst and your best points when it comes to triathlons?	1	2	3	4	5
4. Whom can you really count on to care about you, regardless of what is happening to you in triathlons?	1	2	3	4	5
5. Whom can you really count on to help you feel better when you are feeling generally down in the dumps regarding triathlons?	1	2	3	4	5
6. Whom can you count on to console you when you are very upset about triathlons?	1	2	3	4	5

Appendix D
Cover Letter

approximately 30-40 minutes to complete. Please carefully read the instructions at the top of each section as they change throughout the questionnaire. If you experience trouble interpreting any section of the questionnaire please don't hesitate to ask any questions. Please take the time to review the pages first and if possible complete all questions.

Benefits and Risks to Participants:

There are no known physical risks associated with participation in this research study. Effort will be made to minimize any risks associated with self-report data, such as not asking for contact information on the questionnaires, and using responses for the purpose of describing the individuals that participate in the study, in group form only. No gender, race, or social class stereotyping will be made with the information provided in the questionnaires.

Confidentiality:

Information gathered on the questionnaire will be used for research purposes only, and the identity of individual participants will not be recorded or revealed at any time.

Please DO NOT put your name on the questionnaire. All completed questionnaires will be identified by code number only and will be securely stored for a minimum of five years as required by the University of British Columbia guidelines. No persons other than the members of the research team will have access to your responses.

Contact information about the rights of research subjects:

If you any concerns about the treatment of research participants, you may contact the Research Subject Information Line at 604-822-8598.

Contact information about the study:

If you have any questions concerning the procedures of this study or desire further information please contact Peter Crocker

Appendix E

Removed Items from Original Questionnaire

a) 8. On average how many weeks per year do you take off from training? _____ weeks.

9. What activity do you think, at the present time, you perform best at during a triathlon? _____

10. In general, what of the three sports (swim/bike/run) do you feel you are best at?

11. In a typical week, what activity do you devote the greatest number of training sessions (e.g., swim 4x, bike 6x; thus answer is: bike)? _____

b) Please fill in the table below where we examine a typical training week in early/late spring.

Complete the table by rating each of the activities according to 3 CRITERIA:

1. Amount of physical effort required during the activity. (0 = no effort required & 10 = extreme effort)
2. Enjoyment during the activity. (0 = not enjoyable 10 = extremely enjoyable)
3. Average hours/week of activity. (to the nearest 0.25 hr)

Give a score from 0 to 10 for questions 1- 2, where 0 = not at all enjoyable/no effort required and 10 = Extremely enjoyable, and extreme effort. In the final column estimate the number of hours/week spent in each activity.

ACTIVITY	Effort (0 - 10)	Enjoyment (0 - 10)	Average hrs/week (to the nearest ¼hr)
Swimming alone (not team practice)			
Swim with others (team practice)			
Flexibility training/stretching			
Strength training/weights			
Run/jog alone			
Run/jog with other(s)			
Cycling alone			
Cycling with others			
Mental/relax. exercises			
Watching tri. related events			
Diet/weight control			
Keeping a training journal			
Walking			
Hiking			
Other sports (physical activity)			
Sport 1 _____			
Sport 2 _____			
Sport 3 _____			
Work/study			
Non-active leisure (e.g., TV, movies, socializing)			
Sleep			
Household chores			
Social activities			

c)

SWIMMING: PRACTICE SCHEDULE AND TRAINING HISTORY

	now	Last yr.	>3yrs	>6yrs	>9yrs	>12yr	>15yrs	>18yr	>21yr	>23yr	Start Age
Age											
Hrs/wk											
Avg 1500m Race time											
Wks/yr. Off											

Have you ever swam competitively? Yes or No (please circle one). If yes what

event/distance did you compete at and at what level? _____

(Same for running and cycling)

d) PERIODIZATION OF TRAINING

We are interested in how you break up your year with regard to your triathlon season, and what your emphasis is at different points throughout the year, e.g., base training, pre-race work (strength and speed), racing season, off season etc.

Month	* Hrs/ week				**Intensity of Training			Triathlon Season			
	Swim	Bike	Run	Other	Low	Mod	High	Base	Pre-race	Race	Off
January											
Feb											
March											
April											
May											
June											
July											
August											
September											
October											
November											
December											

*indicate hours/week on average
you would train for that month
for each of the events
or Dec-Feb are base months, so check base for those months

** for these two sections (intensity & season) please put
a check mark in the box that is most appropriate for
that month e.g., Jan is a low intensity month so check low,