

**Triwoman 2009:
Participant Attributes and Intentions**

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**A thesis submitted to Auckland University of Technology in fulfilment of the requirements
for the degree of Master of Philosophy (MPhil)**

2010

Faculty of Applied Humanities

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial effect has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Catherine Crofts

Co Authored Works

Crofts, C., Schofield, G. & Dickson, G. (2010). *The ability of a women-only mass participation sporting event to facilitate a long-term increase in physical activity* (Submitted on 11th June 2010 to Australian Journal of Science and Medicine in Sport).

Crofts, C., Dickson, G., Schofield, G. & Funk, D. (2010). *Post-event behavioural intentions of participants in a women-only mass participation sporting event* (Submitted 8th September 2010 to Asia-Pacific Journal of Health Sport and Physical Education).

The contributions for the papers are as follows:

Study one: The ability of a women-only mass participation sporting event to facilitate a long-term increase in physical activity

Crofts C (80%), Schofield G (10%) & Dickson G (10%)

Study two: Post-event behavioural intentions of participants in a women-only mass participation sporting event

Crofts C (75%), Dickson G (10%), Schofield G (10%) & Funk D (5%)

Acknowledgements

*“Ah, but a man’s reach should exceed his grasp,
or what’s a Heaven for?”*

(Robert Browning 1812-1889)

As I come to the conclusion of this thesis, I can certainly testify that my reach has definitely exceeded my grasp. I have achieved far more than originally imagined, yet I can still see many questions left unanswered.

I could not have completed my journey through this thesis without a considerable amount of assistance from many people. First and foremost my two supervisors: Geoff Dickson and Grant Schofield; who have guided and mentored me throughout this project. The skills I have learnt from you, especially around the art of research, writing and editing will be well utilised in the future. I am grateful for the financial assistance from Sport and Recreation New Zealand.

Nathaniel Dobbin provided a lot of technical assistance with the online questionnaires especially around many of the intricacies of the QuestionPro software. My brother-in-law Simon Buttery provided patient tutoring on Microsoft Excel. Adele Holmes from Triathlon New Zealand helped me to source information on triathlon participation in New Zealand: I thank them all.

To Shane Hooks and the team at Brand New Day: How many lives have you changed and maybe even saved? Your message to get our butts off the couch and move was simple and effective. The phrase “Can’t cook, Gotta train” was both empowering and motivational. Thank you also for your assistance with participant recruitment and event statistics.

The many women who have participated in the Triwoman series over the last seven seasons provided inspiration for this thesis. Your encouragement has been gratifying.

The largest acknowledgement though has to go to my family, especially my husband Dave, for their loving support while being my sounding board, challenging my arguments, and many hours of proofreading.

Ethics approval was granted by AUTECH on 07/11/2008; reference number 08/211

Abstract

The main objective of this thesis is to determine if the 2009 Triwoman series could attract insufficiently active women and encourage them to sustain a sufficient level of physical activity three months after the event. A further objective was to explore the role of the psychological connection model as a means of modelling behaviour change in the active leisure domain.

All participants in the 2009 MoreFM Triwoman series were invited to join the study. Triwoman is a woman-only novice triathlon at the short end of the triathlon spectrum. The study used three online surveys to collect data from four time-points: When they commenced preparation (T0); at time of entry (T1); immediately after their first event (T2) and; three months after their first event (T3). The results showed that the 452 survey respondents at T1 were predominantly middle-aged, well-educated working mothers. These women were motivated towards their physical activity by challenge, competition and enjoyment. Physical activity was high at time of event entry with a mean of 709 minutes (SD = 604) of weekly activity at T1. At T3 (n=95) this declined to a mean of 181 minutes (SD = 156) of weekly activity. There was a transition rate of 62% as eight of the 12 women, who were “Inactive” prior to commencing event preparation, remained sufficiently active three months after their first event.

At T3, more than 70% of the participants intended to return to the Triwoman event. Approximately 80% intended to participate in *other* mass participation sporting event (MPSE) styles such as running or cycling events. This gave a total of about 90% of the T3 participants intending to participate in

other MPSE. This suggests that novice events can act as “gateways” to further event participation. Furthermore, repeat participation in MPSE drives long-term physical activity behaviours.

Psychological connection to triathlons, as measured by the Psychological Connection Model (PCM), was associated with behavioural intentions towards further MPSE participation. The PCM was simple to use and warrants further investigation as a framework by which to understand behavioural change.

This study was limited by low study numbers and was confounded by a low rate of first-time participants. However, it concluded that PCM should be further explored as a behaviour change model in the active leisure domain. Finally, MPSE show promise as a means of encouraging sustainable increases in population physical activity.

Introduction

Physical Inactivity and Health Burdens.

Non-communicable diseases (NCDs) include diseases such as Type II diabetes, hypertension, osteoarthritis and most forms of cancer (Ministry of Health, 2008).

Globally NCDs are increasingly represented in population morbidity and mortality statistics; especially for developed countries (Beaglehole & Yach, 2003). Obesity is reliably associated with these diseases, and is also on the increase (Ministry of Health, 2003). The reasons for the increase in obesity are debatable but are generally accepted to be an increase in caloric intake and/or a decrease in physical activity (PA) (Luke et al., 2009).

Obesity is associated with both diet and physical activity. With respect to diet, globally, individuals have easier access to pre-prepared food, and therefore have easier access to more calories, especially protein-rich calories, than in previous years (Schmidhuber, 2003). This conclusion though has been challenged by other researchers who have concluded that although the overall caloric intake has not increased, the composition of the diet has changed with an increase in carbohydrates (Arnett, Xiong, McGovern, Blackburn, & Luepker, 2000).

With respect to PA, other researchers argue that physical *inactivity* is a more reliable and independent indicator of these diseases (Bassuk & Manson, 2005; Booth & Krupa, 2001; Colditz, 1999). Individuals have fewer opportunities for incidental activity during their day-to-day lives. This is associated with the increased prevalence of labour-saving devices, such as automatic washing machines, a move away from manual workplaces and an increase in motorised transport. This has lead some to describe

sedentary behaviour, a correlate of physical inactivity, as one of the largest threats to public health in America (Booth & Krupa, 2001).

There is considerable academic debate as to whether dietary or activity factors confer greater risk towards the development of NCDs (Gill, Baur, & King, 2010; Weiler, Stamatakis, & Blair, 2010). However, this is a moot point - what is clearly apparent is that both poor diet and low activity levels are associated with NCDs.

With a decrease in manual labour and an increase in motorised transport, leisure-time PA is one of the main forms of population activity. However, one of the main issues associated with increasing leisure-time physical activity is that approximately 50% of people who commence a physical activity (PA) program will drop out within six months (Dishman & Buckworth, 1996; Nigg, Borrelli, Maddock, & Dishman, 2008). This means that understanding motivations and behaviours towards PA can enable researchers, health agencies, policy makers, clinicians, sporting event directors and individuals to make better decisions to either participate in or encourage PA through both overt and covert means.

Mass Participation Sporting Events.

Mass participation sporting events (MPSE) range from spectator events, such as the Olympic Games, though to community wide participation events such as fun-runs (Coalter, 2007). Despite there being a “paucity of research” (Murphy & Bauman, 2007, p. 195) to support such claims, these events are widely accepted as a positive influence on physical activity patterns within the local population. In fact, there is little evidence to support the claim that the mega-spectator events such as the Olympic Games improve population PA levels (Hindson, Gidlow, & Peebles, 1994; Murphy & Bauman, 2007).

Furthermore, there is no evidence to support the belief that participation events, such as fun-runs, have a positive impact on population PA levels through pre-training (Murphy & Bauman, 2007). Despite this, physicians in the United Kingdom are being encouraged to consider these community events as a means to increasing their patients' PA (Bauman, Murphy, & Lane, 2009).

The evidence towards population PA levels being improved by MPSE is confounded by the lack of knowledge of the attendees: Who participates in these events and whether they were previously physically active is unknown. Race directors' claims of improving population health would be strengthened if it is shown that these events actually attract inactive individuals who increase their level of PA during event training and that this increased level of PA is sustained after the event. Conversely if these events only attract those already sufficiently active, or if PA returns to inactive levels after the event, this would weaken such claims.

Behaviour Change.

Observing behaviour change is only the first step to understanding how to foster population-wide behaviour changes. Many researchers study behaviour change with the intent of developing a behavioural change model. This model could then be used to plan interventions that can be used by other researchers, health agencies, policy makers and clinicians to improve factors such as PA with a long-term view to improving population health. Popular models used within the health or PA domains include the theory of planned behaviour (TPB) and the transtheoretical model (TTM). However, these provide an incomplete understanding of behaviour change within the active leisure domain (Beaton & Funk, 2008). The psychological connection model (PCM) is

proposed as a more complete model for understanding behaviour change, but this relatively new model has had limited use in the active leisure domain (Beaton, Funk, & Alexandris, 2009).

PCM has many potential benefits compared to both TPB and TTM. It is very simple to apply in practice: A nine-question questionnaire with an accompanying algorithm for analysis (Funk, 2008). Unlike both TPB and TTM, PCM does not rely on a purely cognitive model of decision making (Funk, 2008). This may allow it to provide a more holistic understanding of behaviour change. However, as previously stated, PCM has not been rigorously applied in the active leisure domain.

Statement of Problem.

Physical inactivity is one of the top ten risk factors for developing a NCD (Booth & Krupa, 2001; Waxman, 2004). Therefore, from a public health perspective, more lifestyle PA will be of long-term benefit; however getting people to be more active can be problematic. It is recognised that approximately 50% of people withdraw from supervised exercise programs in the first six months (Masters, Ogles, & Jolton, 1993; Nigg et al., 2008).

High profile MPSE, such as the New York or London marathons, have the potential to attract large numbers. In New Zealand, duathlon and triathlon events, at the short end of the race spectrum, also attract many participants. These include the Triwoman race series (300m swim, 10km cycle and 3km run/walk) or the REAL Duathlon (3.5km run/walk, 10km cycle and 1.5km run/walk). As most MPSE require pre-training, they have the potential to increase physical activity in many populations

before the event. However, the question remains as to whether participants maintain their increased level of physical activity after the event.

Methodology Overview

This research employs a *three-phase, longitudinal study collecting data from* participants in the women's-only Triwoman triathlon event series. Phase one occurred when participants entered the event. In this phase, survey one collected data for *two* time points: *When preparation commenced* (T0) and *at the current time* (T1). Phase two of data collection occurred immediately after each participant's *first* event (T2) with survey two. Phase three (survey three) occurred three months after the first event (T3).

The questionnaires were designed so that survey one provided the demographic, physical activity and motivational profile of participants. PA data was collected with the use of 1) a retrospective PA question at T0 and 2) the New Zealand Physical Activity Questionnaire (NZPAQ) at T1. Motivational data was collected with the use of an abbreviated Exercise Motivations Inventory-2 scale (EMI-2). Behavioural data was collected with the Psychological Connection Model (PCM) questionnaire.

Survey two repeated the motivational and behavioural questions with the addition of event satisfaction and behavioural intentions towards further events. PA was not included as the effect of the race-day and/or training tapering would have confounded the results.

Survey three repeats the survey two questions with the re-inclusion of both T0 and T1 PA questions.

Definitions

For the purposes of this thesis, the following definitions will be used throughout:

Physical activity (PA): any activity such as walking briskly, swimming, jogging, cycling, or any other activity where the level of exertion is at least as intense as these activities.

Mass Participation Sporting Event (MPSE): A community-based open-entry non-competitive moderate intensity PA event. Running, cycling and triathlons are common types of MPSE. A MPSE may offer competition with prize money and involve elite athletes, so long as the main focus of the event is participation and the majority of participants are accepted without having to demonstrate a stated level of competency.

Sufficiently physically active: Individuals who undertake at least 150 minutes of moderate intensity physical activity over 5 or more days each week.

Insufficiently physically active: Individuals who undertake more than 30 minutes of PA per week but less than 30 minutes of PA per day on at least 5 days per week. This includes those who may undertake more than 150 minutes per week, but over four or fewer days.

Sedentary: Individuals who undertake 30 minutes or less physical activity each week.

Objectives

The objectives of this research are to:

1. Identify the proportion of participants in the Triwoman series who were recently insufficiently active.
2. Establish a demographic profile of the race series attendees.
3. Identify psychological, behavioural and demographic differences between the participants from sufficiently active, insufficiently active and sedentary backgrounds.
4. Identify psychological, behavioural and demographic differences between the participants from sufficiently active, insufficiently active and sedentary backgrounds who report sufficiently active levels of physical activity after the event.
5. Explore the role of the Triwoman series in facilitating a once insufficiently active or sedentary adult to one who reports sufficiently active levels of physical activity post event.

6. Identify psychological, behavioural and demographic differences between those women intending to discontinue participation in these events or those intending to participate in the Triwoman or other MPSE during the following year.
7. Explore post-event satisfaction levels and behavioural intentions towards returning to the Triwoman event, further triathlons and/or fitness events.
8. To explore the role of the psychological connection model in identifying people with different intentions towards further participation in MPSE.

Objectives 1-5 will be addressed in study one. Objectives 6-8 will be addressed in study two.

Significance of the Research

This research is significant for a number of reasons. Firstly, it will add to the limited body of knowledge that currently exists regarding the influence of MPSE in affecting long-term PA; especially in previously insufficiently active or sedentary individuals. Understanding the influence of the event can assist event sponsors, health agencies, policy makers and clinicians to make recommendations based upon the efficacy of MPSE with health promotion.

Furthermore, this research will be able to provide an evaluation of the Psychological Connection Model within the active leisure research domain. This will add to the limited body of knowledge that exists for PCM and provide further understanding as to its potential as a framework with which to evaluate active leisure behaviours.

Study Delimitations

Specific parameters were identified as delimitations of this research and should be considered when interpreting these results or applying them to other situations. This study used an adult women-only event and therefore, these results can not be generalised to men's or children's events. It should though, be noted that this thesis is not intended to be a discussion of women's sport.

The NZPAQ-SF administered during survey one focused on the seven days immediately preceding *race entry*. It was recognised that many participants commence training prior to entering their event and this may affect their baseline level of physical activity. However, asking for a detailed retrospective assessment of PA, as in the NZPAQ-SF, would have introduced an unacceptable level of recall bias. Hence a single question was included to determine PA levels prior to commencing preparation. It was, again, recognised that this question would be subjective and open to bias.

Due to practical limitations, data collection was not maintained beyond 12 weeks after the participants' first event. Therefore, longer-term physical activity levels and actual behaviours towards subsequent events were not investigated.

Survey one commenced in spring/summer but may include the preceding winter; survey two occurred during summer and survey three covered late autumn. Although these surveys had the potential to encompass all seasons and occurred throughout New Zealand, no measurements were taken to assess weather effects; including lower temperatures, reduced daylight hours or inclement weather.

Triwoman who entered their first event and completed the online survey a minimum of seven days before race day were eligible to participate in this research.

This coincided with the availability of online entries, which closed for each event seven days before the race. It was recognised that many women participate in the training and then decide to enter on race day at the event centre. However, this training would bias the NZPAC results with an overestimation in PA levels. One reason for selecting this event for the research is that it was initially understood that there would be no postal or other paper-based event entries. However, these entry modes were later included.

Triwoman events have courses length variations between events especially related to the swim and cycle legs. Several events use a pool swim while the balance use open water, with the distance measured by GPS. Open water swims are acknowledged as being harder than pool swims, even though the nominal distances are the same. Furthermore, course lengths vary at different events for safety, especially in the cycle leg. For example, Whangarei's cycle is a nominal 15km to allow for all competitors to have crossed the one-way road bridge on their outbound leg, before incoming competitors return. No measurements will be taken to assess the effects of these variations.

Thesis Outline

As one objective of this research is to present the findings to those who will benefit from them, this thesis has been presented in a "published format". This means that sections may seem repetitive, however the review of the literature followed by two research papers represent a comprehensive understanding of 1) the effects a novice MPSE can have on participants PA levels and 2) whether PCM is a viable behavioural change model to use within active leisure. The discussion chapter will summarise the two papers.

Presenting this thesis in a published format also means that the reference styles for Study one and Study two may be inconsistent with the rest of the thesis, which is in APA style. This is due to these studies being presented with the same reference style as required by the journal to which they were submitted.

Literature Review

Overview

The purpose of this study is to identify whether a women-only triathlon series has the potential to increase long-term physical activity levels in previously sedentary or insufficiently active women. This chapter reviews existing literature on non-communicable diseases (NCDs), physical activity (PA), mass participation sporting events (MPSE) and behaviour change theories.

The global increase of non-communicable diseases.

By 2030, it is predicted that NCDs will be the main causes of death (Beaglehole & Bonita, 2008). As countries have developed, NCDs have replaced accidents and infectious diseases as the major threats to health (Beaglehole & Yach, 2003). However, increased obesity levels, a known risk factor for NCDs, are also increasing within developing countries (Ministry of Health, 2003; Prentice, 2006).

As defined by New Zealand's Ministry of Health (2003), obesity is a physical condition where the individual's adiposity is excessive for their height, weight, gender and race. It is well accepted that excessive adiposity (i.e. obesity) results from an imbalance between energy intake (food and beverages) and energy output (physical activity) (Luke et al., 2009). Therefore, an obesity equation can be represented as: Obesity = Energy intake > Energy output. Consequently, obesity can be corrected by decreasing energy intake and/or increasing energy expenditure.

Obesity and diet.

Whilst it is recognised that there is an “obesity epidemic”, the academic arguments continue as to whether it is more important to manage diet or physical activity (Gill et al., 2010; Johnston, 2009; Weiler et al., 2010).

Detractors of the caloric argument contend that over time in developed nations, the proportion of the population who are obese is increasing, yet the overall caloric intake is not significantly increasing (Arnett et al., 2000; Russell, Parnell, & Wilson, 1997). Furthermore, whilst the overall caloric intake remains relatively consistent, the composition of the diet is now different: people are consuming less fat and greater amounts of carbohydrate (Arnett et al., 2000).

However, other research supports the caloric argument. A three-year study of African-American women based in Nigerian and Chicago sites demonstrated significant differences in body mass index (BMI) despite there being no significant difference in physical activity levels (measured by doubly labelled water and respiratory gas exchange) (Luke et al., 2009). They concluded that it was not necessary to increase physical activity to avoid age-related weight gain. This research is supported by Swinburn and colleagues (2009), who suggest that substantial increases in total energy intake over the past three decades have driven increases in body weight. Similarly, Heelan and colleagues (2005), suggested that excessive energy intake was the likely cause of weight gain in overweight school children who participated in a six-month study of active commuting .

However, the argument of whether diet or inactivity is more responsible for obesity is a moot point: Few credible sources dispute the health benefits of improved

diet and physical activity. On balance, it is probable that neither argument will independently solve this “obesity epidemic”.

Obesity and physical activity.

Physical activity is important for managing obesity. Weight loss from caloric restriction is sometimes associated with a decrease in lean body mass (i.e. muscle). A decrease in lean body mass can contribute to obesity because it can increase adiposity relative to body mass (Montague & O'Rahilly, 2000). Furthermore, the location of the adipose deposits within the body can influence health outcomes. As early as 1956, differences in adipose deposits were linked to disease states and morbidity/mortality rates (Wingard, 1990). Upper body fat includes the visceral and abdominal subcutaneous fat depots. Adipose deposits in the upper body, as indicated by an increase in the waist to hip ratio (WHR), are shown to be an important predictor for increased morbidity and mortality from coronary artery disease, diabetes and certain cancers (Montague & O'Rahilly, 2000; Wingard, 1990). These deposits are not necessarily associated with obesity. Medical scans have shown that people with a slim build and a “normal” BMI of between 20-25 kg/m² but who do little to no exercise, can have a high degree of visceral fat content, as well as a fatty liver (Revill, 2006).

Visceral deposits represent about 20% of the total body fat in males but only about 6% of the fat deposits in women (Montague & O'Rahilly, 2000). In the lower body, the fat deposits are subcutaneous and predominantly stored around the femoral or gluteal regions. Visceral fat content can be reduced by regular moderate physical activity without significant changes to overall body mass or subcutaneous adipose deposits (Johnson et al., 2009; Thomas et al., 2000).

Physical activity provides beneficial effects to insulin sensitivity and glucose metabolism. Not only do the muscle cells increase in size in response to increased activity, and thus use more glucose, the body also becomes more sensitive to the effects of the insulin and the liver decreases glucose production (Balkau et al., 2008).

Physical activity and additional health benefits.

Although management of obesity is important for population health, increases to energy expenditure have health implications beyond obesity and its related complications.

There is a significant body of evidence suggesting that physical activity reduces disease. Since the 1950s, numerous long-term prospective follow-up studies have assessed the relative risk of death from any cause and from specific diseases associated with physical inactivity (Bassuk & Manson, 2005; Batty & Lee, 2004; Booth & Krupa, 2001; Paffenbarger & Lee, 1996). Consistent among these studies is the finding of an inverse relationship between physical activity and coronary heart disease; a finding that is consistent across both genders (Bassuk & Manson, 2005; Batty & Lee, 2004).

Exercise capacity, defined as an estimate of a person's maximal oxygen uptake for a given workload, is a known predictor of all-cause and cardiovascular mortality (Gulati et al., 2003). In a study of men with and without cardiovascular disease, exercise capacity was demonstrated to have similar predictive powers as smoking for all-cause mortality after adjustment for age (Gulati et al., 2003; Myers et al., 2002).

Physical activity also plays a significant role in lowering the all-cause mortality rate as well as the risks of developing other disease states including cerebrovascular disease, Type 2 diabetes mellitus, hypertension, osteoporosis and colon or breast cancer

(Bassuk & Manson, 2005; Centers for Disease Control and Prevention, 2008; Hu et al., 1999; Nguyen, Sambrook, & Eisman, 1998; Puska, Sepulveda, & Porter; Warburton, Nicol, & Bredin, 2006). The evidence that regular physical activity is associated with primary and secondary prevention of many chronic diseases is “irrefutable” (Warburton et al., 2006, p. 801).

Physical activity is associated with an improvement in mental health for many people. In patients with psychiatric conditions, PA is known to relieve symptoms associated with anxiety, stress and depression (Peluso & de Andrade, 2005; Richardson et al., 2005). These symptoms may be from a “stand-alone” diagnosis, such as Generalised Anxiety Disorder, or be part of a more complex condition such as phobias, mood disorders or schizophrenia (Richardson et al., 2005). PA can also benefit non-psychiatric conditions that can affect mood; for example, relieving symptoms associated with menopause or nicotine withdrawal. These effects are posited to be due to increased neurosynaptic transmission of monoamines and/or endorphins, although the psychosocial aspects of distraction, self-efficacy and increased socialisation undoubtedly play a role (Peluso & de Andrade, 2005).

Some psychiatric conditions, including psychoses, mood disorders and schizophrenia can be directly or indirectly associated with weight gain, glucose intolerance, metabolic syndrome or the development of Type 2 diabetes. This can be due to either the disease state or the medications used to treat the condition (Koro et al., 2002). Therefore, although difficult to implement in practice, PA is highly beneficial for alleviating some of the long-term adverse effects associated with these psychiatric conditions and the medications used their management.

Sedentary behaviour is one of the leading preventable risk factors for mortality (Beaglehole & Yach, 2003; Booth & Krupa, 2001). For many conditions, including osteoporosis with subsequent hip fractures and Type 2 diabetes, this risk is *independent* of those caused by obesity (Colditz, 1999). Furthermore, more than 35 health conditions are aggravated by a lack of physical activity including pain from arthritis, depression, sleep apnoea and diabetes mellitus (Booth & Krupa, 2001). This clearly demonstrates that physical activity is a key determinant of population health.

The economic burden of sedentary behaviour.

As stated above, obesity-related non-communicable diseases are predicted to dramatically increase in the coming years (Beaglehole & Bonita, 2008; Beaglehole & Yach, 2003; Ministry of Health, 2003). This will cause significant global economic burden as governments, communities and families must fund the associated costs. These costs can be direct, such as the immediate expenses to the health system, or indirect, such as economic loss through time off work either for the affected person or due to care required from a family member (Allender, Foster, Scarborough, & Rayner, 2007; Colditz, 1999).

Sedentary behaviour represents a significant burden to the public health system. It is estimated that a 10% decrease in the prevalence of physical inactivity provides for a 7% cost saving. Figures from the USA and Canada estimated that 2.5% of direct healthcare costs are attributable to physical inactivity (Colditz, 1999; Katzmarzyk, Gledhill, & Shephard, 2000). Within New Zealand, diabetes was recently reported to be “killing the country” (Todd, 2010 para. 8). In the early 2000’s, New Zealand spent approximately 3-4% of the health budget on treating diabetes which is predicted to

increase to 15% by 2021 if current trends continue (Todd, 2010). This will be predominantly Type 2 diabetes as up to two-thirds of these cases are reported as preventable with lifestyle measures such as improved diet and increased PA (Todd, 2010).

The research reviewed so far suggest that both physical activity and diet need to be addressed to manage the increasing burden of obesity. However, the research also suggests that there are significant public health and economic benefits to increasing population levels of physical activity that are independent to obesity management. It is of further concern that research indicates the population as a whole is becoming more sedentary (Paffenbarger, Blair, & Lee, 2001).

Sedentary populations.

There are a number of factors explaining this increase in sedentary behaviour. There is a high level of dependency on motorised transportation. In the United States, 86% of all person trips are by private motor vehicle (Bell, Ge, & Popkin, 2002). An activity as fundamental as “walking to school” is in decline (Merom, Tudor- Locke, Bauman, & Rissel, 2006). In the late 1990s research showed that the proportion of school children who walk to school varies significantly according to their location. In London, 70% of children normally walk. This contrasts significantly with the United States of America where the figure can range from 9% to 20%. Australia and New Zealand have similar figures of approximately 30% (Merom, Rissel, Mahmic, & Bauman, 2005). However, in New Zealand, a retrospective survey determined that 77% of parents of 10 year olds walked or cycled to school themselves as 10 year olds

(Hamlin & Ross, 2005). This suggests that there is a significant increase in reliance on motor transportation in only one generation.

Sedentary behaviour is linked to modern technologies. Labour saving technologies - washing machines, lawnmowers, escalators or elevators provide fewer opportunities for physical activity (Paffenbarger, et al., 2001). Passive leisure devices - televisions, computers, and gaming consoles – encourage sedentary behaviour (Crespo et al., 2001). Children who spend more than two hours per day watching television or computer screen have lower levels of aerobic fitness and higher levels of obesity compared to those who watch fewer hours (Crespo et al., 2001; NZPA, 2009a). New Zealanders are increasing their television consumption with viewers currently watching an average of more than three hours each day (NZPA, 2009b).

Urban landscapes affect incidental physical activity. Street connectivity, land-use mix and residential density are associated with moderate physical activity (Badland, Schofield, & Garrett, 2008). New suburbs are less likely to have a mix of homes, shops and other facilities. These same suburbs are designed around the use of the private motor vehicle. Consequently, individuals living in newer areas are, on average, approximately 2 kg heavier than those living in older areas (Schuler, 2008).

Neighbourhood greenness is another relevant factor. Neighbourhood greenness impacts child and youth body mass index with an inverse relationship being demonstrated that is independent of residential density (Bell, Wilson, & Liu, 2008). It is believed that urban vegetation influences physical activity for children, youths and adults in different ways: 1) Greenness may indicate proximity to parks, playing fields or

other open spaces where children or youths are more likely to play. 2) Tree shade and scenery are associated with reports of increased walking by adults (Bell et al., 2008).

Many occupations are becoming more sedentary and less physically demanding (Shatkin, 2007). Workers with a sedentary occupation do not necessarily compensate for their lack of physical activity by an increase in active leisure time (Jans, Proper, & Hildebrandt, 2007). Consequently, there is a concern that the recommended level of 30 minutes of moderate physical activity per day is insufficient to prevent diabetes and obesity for people with sedentary occupations (Macey, 2007). The factors describe above show how work and home based physical activity opportunities have decreased due to labour saving devices and a decrease in manual technology. *Incidental* activity, that is the small incremental amounts of PA gained during activities such as walking to work or to school, have also decreased due to newer technologies including the motor car. This leaves leisure time PA as the main form of PA for many people.

How much physical activity is enough?

Determining the amount of physical activity required to maintain good health has been investigated for several decades. The minimum thresholds for exercise intensity, duration and frequency to result in beneficial effects have changed considerably over time.

In 1975, the American College of Sports Medicine recommended that vigorous exercise intensity was required in order to maximise health benefits; defined as at least 70% of maximal oxygen intake. However, by 1991, this had declined to 40-60% (Blair, Kohl, Gordon, & Paffenbarger, 1992). Exercise need not be prolonged. Exercise can be accumulated in multiple short-bouts throughout the day (DeBusk, Stenestrand, Sheehan,

& Haskell). It was also recognised that the key factor is total energy expenditure and that “doing some exercise is better than doing none at all” (Blair et al., 1992, p. 115). Furthermore, Blair et al. (1992) recommended that at least 30 accumulated minutes of moderate intensity activity (equivalent to a brisk walk) should occur on most days to achieve health benefits. Further research is starting to suggest that this quantity of PA may not be sufficient (Blair, LaMonte, & Nichaman, 2004). However, the recommendation of 30 minutes per day on most, if not all, days of the week, continues today in many countries, including New Zealand (Ministry of Health, 2010). The notion of “best practice” is clearly evolving.

Physical activity in New Zealand.

Sport and Recreation New Zealand (SPARC) and the Ministry of Health have collected data on New Zealanders’ attitudes towards physical activity and the amounts achieved. The preferred tool for measuring physical activity in adult New Zealanders is the New Zealand Physical Activity Questionnaire (NZPAQ). The NZPAQ is a physical activity self report tool adapted from the International Physical Activity Questionnaire to be relevant and culturally appropriate to the New Zealand context (Mackay, Schofield, & Schluter, 2007). The NZPAQ is analysed as according to the IPAQ protocols (Maddison et al., 2007).

New Zealand Health Surveys and “Obstacles to Action,” a SPARC commissioned survey, both utilise the NZPAQ. The studies between 2002 and 2007 show that approximately 50% of all New Zealand adults are considered to be sufficiently active (more than 30 minutes physical activity per day on at least five days

per week). This suggests that approximately 50% of all New Zealand adults are not getting sufficient physical activity to maintain good health.

The New Zealand results are consistent with other countries (Marcus et al., 2000; Ministry of Health, 2008; Sullivan, Oakden, Young, Butcher, & Lawson, 2003).

Physical Activity and Sporting Events

Mass participation sporting events and sustained physical activity.

Sporting events are often assumed to impact on physical activity patterns within the local population. These events range from spectator events, such as the Olympic Games, though to community wide participation events such as fun-runs. Murphy and Bauman (2007) published a literature review on the ability of mass participation events to increase physical activity to a level that is sufficient for health benefit. They found that there was a “paucity of research” (p. 195) in this area of research as described below.

Elite sporting events.

Large-scale elite sporting events, such as the Olympic Games, are often described as having the potential to impact the physical activity behaviour of the population. This is achieved by either inspiring people to take up the sport they have been viewing and/or by providing more facilities for the wider community to use after the event (Coalter, 2007; London Organising Committee of the Olympic Games, 2005; Murphy & Bauman, 2007).

However, research for this effect is limited. Following the 1992 Summer and Winter Olympic games, there was no apparent increase in New Zealand sports club membership (Hindson et al., 1994). There were also no demonstrable changes to the proportion of the population meeting health enhancing levels of PA following the Sydney Olympic Games in 2000 (Murphy & Bauman, 2007). Similarly, it was concluded that the 2002 Manchester Commonwealth Games made no measureable

impact on sporting activities in the immediate post-games period (Coalter, 2007; Murphy & Bauman, 2007).

Following their hosting the FIFA World Cup in 1994, the USA experienced an increase in youth football club membership (Sugden & Tomlinson, 1996). In other circumstances, increases in Scottish curling members were recorded following the success of the Scottish Olympic team at the 2002 Olympics (MORI, 2004). In both of these situations, the sport involved is considered to be a minority sport and new members may have been influenced by other factors (MORI, 2004; Sugden & Tomlinson, 1996). There did not seem to be any significant influence on overall population physical activity due to these club increases. It is not known whether these new participants were previously active in other sports. Switching sports is not guarantee of increasing physical activity levels.

Large-scale sporting events do not appear to be successful in inspiring people to adopt a more physically active lifestyle. The reasons for this are not clear. One theory is that the events are marketed as short-term “entertainment” to be viewed passively through television or attending the event (Murphy & Bauman, 2007). Another explanation is that the level of excellence shown by the elite athlete discourages the newcomer through fear of embarrassment (Hindson et al., 1994). Methodologically, there is also the difficulty of accurately measuring pre- and post-event levels of physical activity and then the even more difficult task of attributing changes to the event (Murphy & Bauman, 2007).

Major population-level health promotion events.

Major population-level health promotion events are those designed to raise awareness around healthy lifestyles. These events include world-wide events such as “World Car-free Day” through to national or community events such as “walk to school” or “ride to work” days. These events encourage people to adopt the healthy behaviour on a specific day, with the hope that these behaviours will be adopted on a more permanent basis.

An Australian study measured the impact of two “active commuting” initiatives. Australia’s “Walk to Work Day” is an annual short-term campaign aimed to encourage “active commuting” such as walking or cycling. In 2003 pre- and post-campaign interviews were held with members from randomly selected households asking them about their normal commuting modes of transport (Merom, Miller, Lymer, & Bauman, 2005). Results showed that there was a significant increase in active commuting and in other physical activity after the campaign. However, it is not clear when the second set of interviews occurred or if the increases in physical activity were sustained. A project termed “Walk Safely to School Day” in Australia showed an on-the-day increase of 7% in the prevalence of walking to school amongst children who normally took motorised transport but it was believed that this change was transient. Safety issues were cited as being the biggest reason behind the drop in children actively commuting to school (Merom, Rissel et al., 2005).

The second event was the “Ride to Work Day”, promoted by the Victorian government from 1994 to 2005, when it became an Australian national event. Since 2003 the event has been described as “the main call to action in an ongoing, year-round behaviour change campaign” (Bicycle Victoria, 2007, p. 8). The participants in the

“Ride to Work Day” are surveyed each year with a focus on those cycling to work for the first time during the lead up to, or on the day of the event. These surveys are generally held five months after the event day. The data suggest that an increased number of first-time riders underpin the growing number of participants. Furthermore, and perhaps more importantly, an increasing number of first time riders are still cycling to work five months after the event (Bicycle Victoria, 2007). However, while data showed that more than 80% of the people who started cycling to work through this event in 2005 were generally sufficiently active one month after the event, there was no data on pre-event activity levels (Bicycle Victoria, 2006). None of the other surveys assessed physical activity prior to the event, so it is unknown if these events are increasing physical activity levels.

Health promotion campaigns that encourage a single day of healthier behaviour can appear to be successful but may not elicit long-term change in those people who are sedentary or insufficiently active. The Australian Ride to Work Day appears to be encouraging longer-term changes in behaviour. However, it is difficult to distinguish the effect of their overall year-round campaign from the immediate pre-event impact on the population behaviour change.

Non-elite mass participation events.

Non-elite MPSE refer to moderate intensity, community-wide, non-technical events without competency-based entry criteria. These events range from community “fun-runs” through to large-scale events such as the London marathon. Although it is likely that the longer events, such as a half or full marathon, attract those who are already active prior to the event, these events do attract a wide proportion of the

community (Bauman et al., 2009). Analysis of these events show that they have the potential to stimulate or maintain physical activity as pre-training is normally required. For example, a survey of participants in the Irish Flora mini-marathon in 2007 showed that while over 33% trained continuously, a further 28% trained for at least three months prior to the event itself (Lane, Murphy, & Bauman, 2008). Medical practitioners in the United Kingdom are being encouraged to recommend to their patients that they enter a non-elite community event if physical activity stimulus is required (Bauman et al., 2009). Despite increasing numbers of participants in an increasing number of events, only now are researchers starting to assess pre-event physical activity patterns, or track activity post-event (Lane et al., 2008; Murphy & Bauman, 2007).

In 2006, Bowles, Rissel and Bauman investigated whether participating in a non-elite mass cycling event would affect cycling behaviour. The key findings were an increase in riding frequency one month following the event. This was particularly noticeable in respondents who had rated their cycling ability as “low” prior to the event. These people increased their riding frequency from four sessions per month prior to the event to an average of 6.8 sessions per month after the event ($p < 0.0001$). First-time participants in the event also significantly increased their average number of monthly sessions from 7.2 pre-event to 8.9 sessions one month after the event ($p = < 0.0001$).

One limitation to this event was that the participants’ overall physical activity was not objectively measured. Participants were asked to compare their own physical activity levels to “others of the same sex and age” (Bowles, Rissel, & Bauman, 2006, p. 3). The proportion of those who described themselves as being “less active” or “much less active”, was low before the event (3.3% and 0.4% respectively) and had no

significant change post-event (3.4% and 0.3%). Furthermore, 85% of participants reported participating in 150 minutes of physical activity held over five or more days of the week prior to the event. This suggests that this event attracted only a few insufficiently active participants: Their results are further confounded by no discussion of the proportion of participants in the different length options (20km or 50km). Although these results showed an increase in cycling behaviour, the results were modest with an increase of between two and three rides *per month*. Despite this, this is one of the first studies in the literature to investigate PA behaviours following an MPSE and it provided tentative evidence that events can act as a catalyst for increased levels of physical activity. Due to an insufficient number of inexperienced riders taking part in the event, the authors recommended further research to investigate the public health potential of such events and that events specifically aimed at novices should be explored (Bowles et al., 2006).

Identifying the features distinguishing participants that transition from being insufficiently active pre-event to sufficiently active post-event appears beneficial from a health perspective as it allows more specific resource targeting.

Understanding Behaviour Change

Overview.

This section reviews models and theories that seek to explain behaviour change in the context of physical activity. Theories are dynamic entities that should evolve over time and as such, a broad understanding of multiple theories may aid theory improvement (Razzaque, 1998). All of the theories and models discussed below have the potential to at least partially explain why some women transition from being insufficiently active to being sufficiently active, or why others revert back to insufficiently active behaviours.

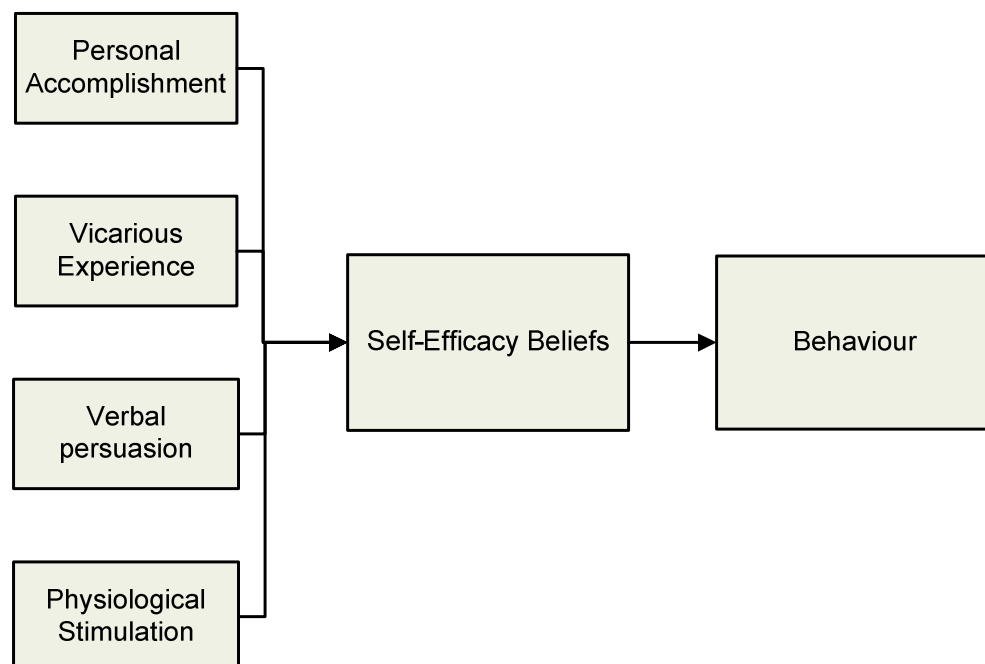
Beaton and Funk (2008) provided five criteria with which to assess and determine the suitability of theoretical models used within the PA domain to guide researchers, policy makers and practitioners. 1) Theories should be congruent with conventional wisdom. In other words, the researchers' theories must align with practitioners' understanding, especially with respect to the language and definitions of keywords (Henderson, Presley, & Bialeschki, 2004). 2) Theories should possess functional meaning across paradigms, namely the many different perspectives found within the research and practise. 3) Theories should provide for a holistic account for the phenomena. For example, past behaviour is known to impact future performance, but is not always accounted for in different models (Thurston & Green, 2004). 4) Theories should describe inputs, processes and outputs. Theories are at their most useful when placed in context (Henderson et al., 2004; Razzaque, 1998). 5) Theories should allow for rigorous testing and evaluation as this ensures robustness and repeatability.

Beaton and Funk (2008) applied these five criteria to the following models: Transtheoretical model (TTM), theory of planned behaviour (TPB), health belief model (HBM), schema theory (ST), sport commitment model (SCM) and the psychological connection model (PCM). These will be discussed below along with the application of these criteria to a further two models - self-efficacy theory (SET) and self-determination theory (SDT).

Self-efficacy theory.

Self-efficacy theory (SET), (see Figure 1), postulates that the stronger the individual's perception of their personal self-efficacy towards a given behaviour, the more likely they are to achieve the said behaviour (Bandura & Adams, 1977). SET is used as a theory in its own right as well as being incorporated into other behaviour change models including HBM and TPB.

Figure 1. Self-efficacy theory.



Self-efficacy, or the individual's belief that they are capable to successfully execute the desired course of prospective actions, is postulated to be the strongest and most consistent predictor of exercise behaviour (Sherwood & Jeffery, 2000).

For any given behaviour self-efficacy can be derived from four main sources: personal accomplishment, vicarious experience, verbal persuasion and states of physiological stimulation (Bandura & Adams, 1977). Success in personal accomplishments provides the individual with direct evidence of capability for a given task or skill. Independent success or success with difficult tasks raises self efficacy more than success achieved with the assistance of others or with easier tasks (Morris & Summers, 2004). Vicarious experience such as observing another person perform a task can enhance self-efficacy if the person watched is similar to the observer in ability related characteristics (George, Feltz, & Chase, 1992). Examples can include observing another triathlete go through transition. Vicarious experience is especially important when the individual is heading into an unknown territory, however the strength of these observations becomes diminished after experience is gained. Verbal persuasion can often be described as a "pep-talk" as being told that you have the ability to perform a task can increase self-efficacy (Weinberg, Grove, & Jackson, 1992). This method of increasing self-efficacy is more likely to be effective if from a credible source; normally one who is perceived to have the knowledge or experience required (Morris & Summers, 2004). Self-efficacy can also be influenced by the individual's physiological state. Positive emotional states such as happiness, exhilaration or excitement can increase self-efficacy. It can be decreased by sadness, anxiety or depression. Physical

states such as fitness, fatigue or pain can also influence self-efficacy judgements (Morris & Summers, 2004).

The links between PA and self-efficacy are not always clear. Gleeson-Kreig (2006) used SET as part of an intervention to increase PA in adults with Type 2 diabetes. Their intervention aimed to increase self-efficacy towards PA compared to a control group. They found that an increase in self-efficacy was associated with an increase in PA. However, both the intervention and the control groups recorded an increase in self-efficacy, with a corresponding increase in PA. It was concluded that just by simply being in the study increased self-efficacy and the intervention did not provide a sufficient increase in self-efficacy.

SET fails to meet several of Beaton and Funk's (2008) criteria. Pajares (2002) states that many researchers confuse the areas of self-efficacy and self-concept (self-esteem) beliefs. Furthermore, the types of all-purpose self-efficacy instruments prevalently used by self-efficacy practitioners are not recommended to be used by the self-efficacy theorists (Morris & Summers, 2004). This suggests that SET fails to meet Beaton and Funk's first two criteria. Criterion 3 is failed as there is no evidence of SET applying demographic or cultural influences which are known determinants of PA behaviour (Dishman, Sallis, & Orenstein, 1985). Furthermore, SET is incorporated into further models such as TPB and HBM. This implies that other factors are required, beyond SET, in order to explain behaviour. Criterion 4 is partially satisfied as the inputs are described. The previously described disparity in research methodology, where some practitioners use microanalytic techniques and others use generalised self-efficacy scales, suggests that SET only partially fulfils criterion 5.

Overall, the use of the SET is not recommended as an individual theory with which to understand PA as it has been superseded by other models such as TPB.

Self-determination theory.

Self-determination theory (SDT) is considered to be a macrotheory of human motivation as it encompasses a number of other theories (Deci & Ryan, 2008b (Morris & Summers, 2004)). There are different types of human motivation but all are based in the three primary psychological needs of *autonomy*, *competence* and *relatedness* (Deci & Ryan, 2008b). Autonomy can be defined as self-initiated or being in control; competence as developing expertise or succeeding in the task and relatedness as camaraderie or connecting with others (Morris & Summers, 2004). Autonomy and competence combined forms the basis of intrinsic and extrinsic motivation, which is the overall framework of SDT (Morris & Summers, 2004). From here, the theories within the macrotheory of SDT relate to the degree to which the needs have been satisfied, tending to concentrate on aspirations or causality orientations (Deci & Ryan, 2008b).

Aspirations can guide one's long-term goals and can be intrinsic or extrinsic. Intrinsic aspirations include life goals such as affiliation or personal development, whereas extrinsic aspirations lead to external indicators or worth such as wealth or fame. It is believed that intrinsic aspirations are met when the basic needs of autonomy, competence and relatedness are satisfied and extrinsic aspirations are sought when these needs have been thwarted (Deci & Ryan, 2008b).

Causality orientations are general motivational orientations that tend to determine the extent to which people are self-determined in general or across situations or domains. There are three main causality orientations: *autonomous*, *controlled* and

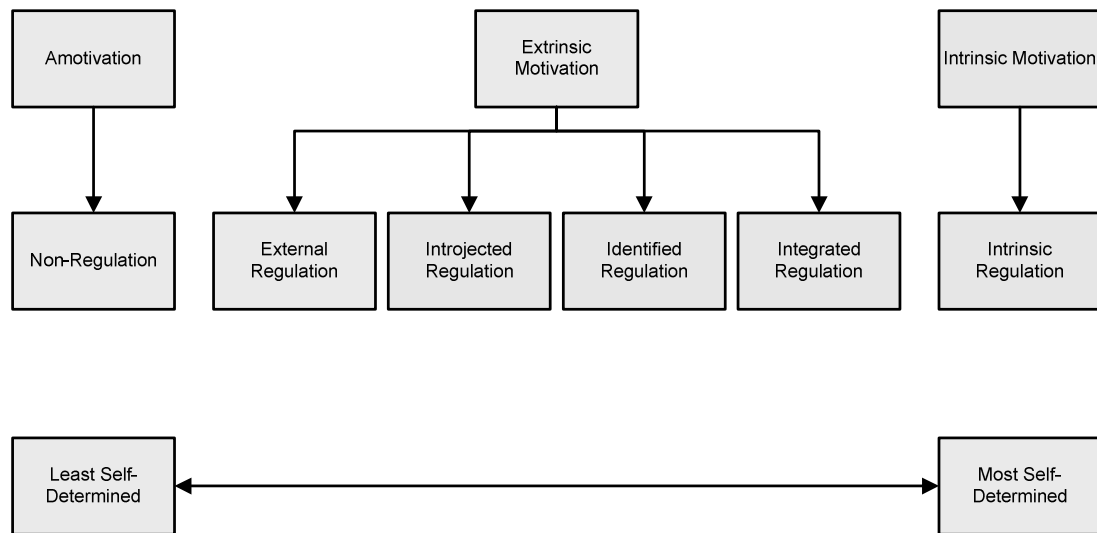
impersonal (Deci & Ryan, 2008b). Autonomous orientations strengthen as a result of ongoing satisfaction of all three basic needs (autonomy, competence and relatedness), and are associated with high levels of psychological health and effective behavioural outcomes: For example, the person who goes running because they find it fun and challenging. A strong controlled orientation develops from some satisfaction of competence and relatedness but is associated with rigid functioning and diminished well-being. This can include the person who takes up regular walking because “my doctor thinks I should.” Impersonal orientation develops after a general thwarting of all three needs and is reliably associated with poor functioning such as a lack of vitality (Deci & Ryan, 2008b).

SDT was utilised in a study investigating PA predictors in Hungarian youth (Biddle, Soos, & Chatzisarantis, 1999). Although behavioural regulation was the proximal determinant of intentions, the model only accounted for about 19% of the variance (Biddle et al., 1999). This is much lower than the 35% that is reported with TPB-based studies (Godin, 1994).

When applied to Beaton and Funk’s (2008) criteria, the SDT appears to meet criterion 1 by being congruent with current wisdom. However, by being highly contextual and a macrotheory, it can have quite a sophistic nature, which causes difficulties with practical applications. It has been applied in a number of realms, including PA, education and healthcare, thus satisfying criterion 2. SDT is believed to holistically account for the phenomena. Dishman and colleagues (1985) describe the known determinants of PA. While SDT does attempt to cover many of these aspects, Vallerand, Pelletier and Koestner (2008) suggest further research is recommended on

the role of the environment. Therefore it is reasonable to state that SDT partially satisfies criterion 3. SDT does describe inputs, processes and outputs, however, Vallerand and colleagues (2008) discuss that while a self-determined continuum between amotivation and intrinsic motivation exists (see Figure 2) it is still not clear how a person moves between the regulation stages. Thus SDT only partially satisfies criterion 4. Finally, by being a macrotheory, and being highly contextual, SDT may have testing and evaluation issues. It has been extensively studied in various domains, but few studies have used an experimental design (Vallerand et al., 2008). This suggests that SDT only partially satisfies criterion 5.

Figure 2. Self-determination theory.



Source: Adapted from Deci and Ryan (2008a)

Overall, SDT appears to be a reasonable framework with which to understand behaviour change as it either satisfies or partially satisfies all of Beaton and Funk's criteria. However, the sophistic nature of the theory with the need to combine multiple sub-theories makes the theory very complicated to use in practice.

Transtheoretical model.

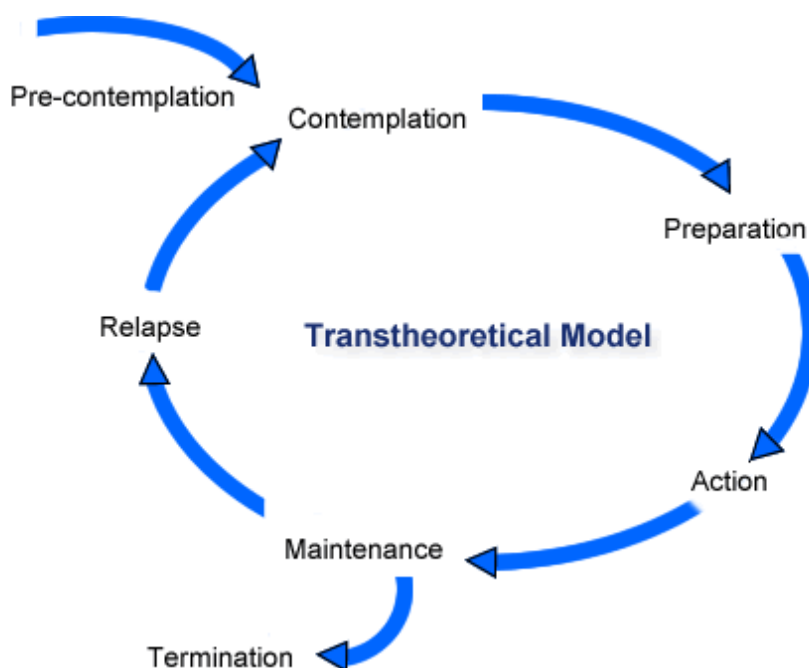
Transtheoretical model (TTM), also known as the “stages of change model”, is a medical framework that is often utilised by clinicians (Herzog, 2005). TTM is a model of *intentional* change that focuses on the decision making of the individual. The model was originally developed for the study of addictions, and focuses on the elimination of negative behaviours. TTM has been utilised in the context of smoking cessation and adopting a physical activity regime (Di Clemente et al., 1991; Woods, Mutrie, & Scott, 2002).

TTM describes the cognitive and behavioural processes individuals use while modifying a problematic behaviour (e.g. stopping smoking). It is based around a five-stage framework termed *stages of change*. These five stages are labelled *pre-contemplation*, *contemplation*, *preparation*, *action* and *maintenance*. A sixth stage, *termination*, was later included.

The behaviours within a given period define the stage a person is in. Pre-contemplators are not intending to change in the following six months, while contemplators are planning to change in the next six-months. If a person is planning to change in the next 30 days, *and* has made an attempt to change their behaviour in the previous year, then they are considered to be in preparation. Those who have successfully reached the defined end-point are considered to be in action (Di Clemente et al., 1991). If they remain in the action stage for a further six-month period, they are then considered to be in maintenance (Prochaska, Wright, & Velicer, 2008). A person remains in maintenance until there is a certainty that re-adoption of the negative behaviour will not occur; normally a period of at least five years. Termination can then be assumed (Beaton & Funk, 2008). If the behaviour in question is not the termination

of a *negative* behaviour, but instead the adoption of a *positive* behaviour, then only the first five stages are used and the individual remains in maintenance (Beaton & Funk, 2008). Relapse is defined as “an event that terminates the action or maintenance phase prompting a cyclical movement back through the initial stages of pre-contemplation or contemplation” (Di Clemente et al., 1991, p.295). Progression through the stages is generally described as cyclical (see Figure 3) as many individuals will make several attempts at the behaviour change before their goals are realised (Marcus & Simkin, 1994).

Figure 3. Transtheoretical model.



Practitioners who utilise this model identify an individual’s stage and tailor information to encourage further development through the stages. Moving an individual on to a subsequent stage, even if they do not reach and adopt maintenance behaviours, is

still considered to be a worthwhile goal. This is because it increases the likelihood that they will (eventually) reach maintenance, and termination.

The *processes of change* effect transitions between these stages. These processes are distinguished into ten separate variables, which are grouped into two factors: experiential and behavioural (see Table 1) (de Vet, de Nooijer, de Vries, & Brug, 2006). This model though, has many flaws, especially when related towards physical activity. TTM emphasises the importance of *planned* physical activity (Prochaska, 2004). Yet Caspersen, Powell, & Christenson (1985) make the distinction that *exercise* is a *planned* subset of physical activity thus suggesting that a significant proportion of PA is unplanned. Thus PA is a healthy behaviour but may be undetected by this model.

West (2005) argues that the temporal rigidity that differentiates the stages are arbitrary. Therefore, they have no functional purpose as many people will suddenly move between stages in response to potentially small stimuli. For example, Larabie (2005) found that more than 50% of smokers did not plan their attempt to quit smoking.

Furthermore, this five-stage model assumes that the behaviour in question has a dichotomous end point, for example, the complete cessation of smoking. Although it can be argued that the extinction of sedentary behaviour or the adoption of sufficient physical activity has a dichotomous end-point; physical activity behaviours may be more appropriately seen on a continuum. For example, Pivarnik, Reeves, and Rafferty (2003), showed that 83% of individuals in Michigan undertook leisure-time physical activity in summer, compared to 67% in winter. This suggests that individuals have their own seasonal pattern towards physical activity and change activity intensity as

according to the season. This “ebb and flow” behaviour does not fit with the rigidity of TTM.

Table 1: *Description of Processes of Change*

Stage of Change	Processes of Change	Effect	Example
Precontemplation- Contemplation	Consciousness raising	Increases awareness about the causes, and consequences for a given behaviour	I'm interested in information about physical activity
	Dramatic relief	Produces increased emotions followed by reduced effect if appropriate action taken	I'm afraid I may develop heart disease if I do not get sufficient physical activity
Contemplation - Preparation	Experiential reevaluation	Affective and cognitive assessment of the behaviour within the social environment	If I do not get sufficient physical activity and fall ill, I will be a burden to my family
		Cognitive and affective assessment of self image with respect to the behaviour	I believe that being sufficiently physically active will make me healthier and happier
Preparation - Action	Social Liberation	Society norms support the healthy behaviour	I am aware that more people know that being sufficiently physically active is healthy
	Self Liberation	Believing and committing to the change	If I try hard enough, I can be sufficiently active
Action- Maintenance	Counter-conditioning Stimulus Control	Replacing problem behaviour with healthy behaviour	Instead taking the elevator, I take the stairs
		Removing cues for unhealthy behaviour and adding prompts for healthy behaviours	I do things to remind me to get more physical activity
	Reinforcement management Helping relationships	Reinforcements for adopting healthy behaviours	My family rewards me when I get sufficient physical activity
		Positive supportive relationships that support change	My family encourage me to get sufficient physical activity

Source: Adapted from de Vet et al. (2006)

Another flaw in TTM is that it relies on the person making a conscious decision about the change involved. Even *reinforcement management*, a process of change sub-category, leans strongly towards conscious measures of reinforcement such as “Other people reward me when I [complete a healthy behaviour]” (de Vet et al., 2006). West (2005) argues that many unhealthy behavioural patterns develop through entrenched and semi-automated behaviours which operate outside conscious awareness. Although West’s argument is developed from an association with addictive behaviours, the association between physical activity and increased endogenous endorphin production are clear (Daniel, Martin, & Carter, 1992). In conjunction with PA’s association with psychological wellbeing and neuroprotective effects, West’s argument suggests that physical activity affects behaviour in ways that are not necessarily under conscious control (aan het Rot, Collins, & Fitterling, 2009; Dishman et al., 2006).

TTM fails criteria 1 and 3, partially satisfies criterion 2 but meets criteria 4 and 5. TTM was developed during the study of addictions and so is consistent with conventional wisdom for the elimination of negative health-associated behaviours. However, people participate in PA for more reasons than to maintain/improve health. This means that TTM’s nomenclature, staged relationships and temporal rigidity, hold little practical significance when referring towards recreational behaviour. This lack of practical significance suggests that TTM cannot be congruent with conventional wisdom. Furthermore, by not accounting for the myriad reasons the people participate in PA, TTM cannot holistically account for behaviour change. Thus it fails criteria 1 and 3. Criterion 2 is only partially satisfied. There is functional meaning across *health* research-practice paradigms but not across the *participation* research-practice paradigms as TTM focuses on the extinction of a

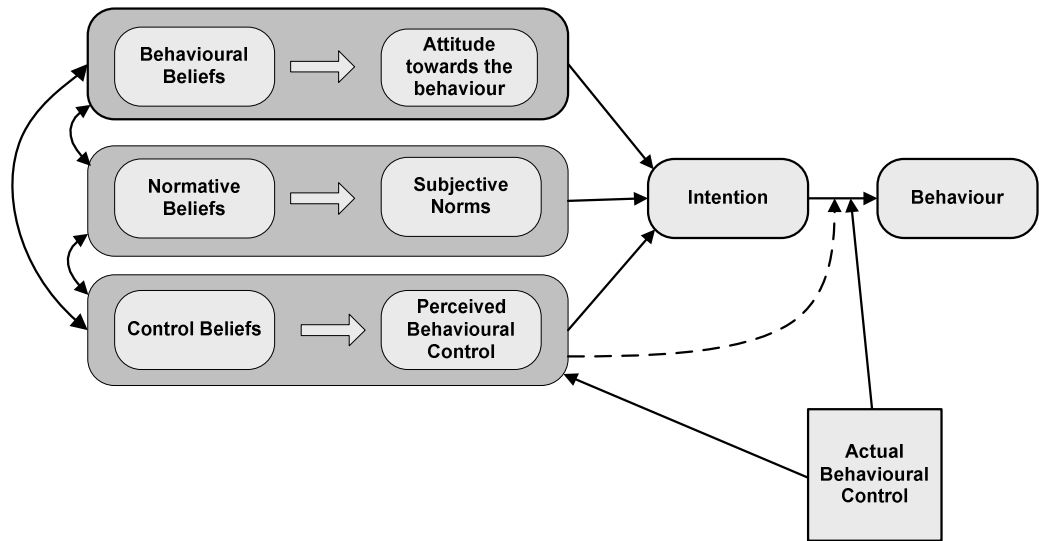
negative (sedentary) behaviour. TTM does have the ability to provide a holistic explanation for the phenomena of participation by making allowance for the adoption, maintenance, drop-out and re-adoption of behaviour. However, criterion 3 is not satisfied due to the absence of constructs that adequately represent physical, psychological and environmental factors previously shown to have significant relationship with PA behaviour, such as demographics, motivation and facility access (Dishman et al., 1985). TTM's framework does provide for the inputs, processes and outcomes for the behavioural change. It has been rigorously tested as evidenced by TTM being the most widely applied stage-based model in the study of exercise behaviour. Thus TTM meets criteria 4 and 5 (Velicer, Prochaska, Fava, Norman, & Redding, 2000).

TTM is a very simple framework to understand and is the most widely used behavioural change model used in clinical practice. However, it is not the best model by which to understand behaviour change as it does not explain a number of determinants shown to impact on PA behaviours.

The theory of planned behaviour.

The theory of planned behaviour (TPB), (See Figure 4) is the most widely applied social psychological perspective for understanding behaviour (Beaton & Funk, 2008).

Figure 4. Theory of planned behaviour .



Source: Adapted from Ajzen (2006)

The central precept is that any given behaviour can be determined by considering the valency of three belief systems: behavioural, normative and control. These beliefs interact with each other and mediate directly on an individual's attitude, subjective norms and perceived behavioural control. The resultant independent variables are summed to provide a measure of intention (Ajzen, 1991, 2006). Intention should predict behaviour when the following conditions are met (Ajzen and Fishbein (1980) as cited in Kendzierski (1994). 1) Intention and behaviour are measured at corresponding levels of specificity; 2) Intentions have not changed between being measured and the measurement of behaviour; and 3) The behaviour is under volitional control. Intention is considered the best predictor of future behaviour when an individual's perceived control equates to actual control.

Behavioural beliefs represent a person's attitudes towards a particular behaviour. For example, "doing X is a good/bad idea." Normative beliefs are formed as a combination of perceived social pressure around a subject and the motivation to comply with these beliefs. For example, "society thinks that doing X is a good/bad idea". Control beliefs are formed as a result of the perceived

feasibility of being able to perform the behaviour. For example, “it will be easy/hard for me to do X” (Ajzen, 2006; Beaton & Funk, 2008; West, 2005).

In the health related fields, TPB has been used to assess a variety of behaviours including fruit and vegetable consumption and physical activity (Bogers, Brug, van Assema, & Dagnelie, 2004). Within the PA domain, TPB is predominantly used to operationalise theoretical variables and predict intentions and behaviours (Darker, French, Eves, & Sniehotta, 2009). Unlike TTM, the TPB has not been commonly used to design interventions to mediate change (Darker et al., 2009). When used, TPB does not fully explain the results recorded. TPB, like other social-cognitive models, only accounts for up to 35% of the variance in exercise behaviours (Godin, 1994). For example, Darker et.al. (2009) found that their TPB-mediated walking intervention increased pedometer minutes by a statistically significant amount in their participants. However, when they assessed the effects that TPB factors had on the results, they found that attitude as a mediator increased (*the dependent variable*) intention ($p < 0.1$). Yet when intention was applied as the mediator, it did not significantly increase the dependent variable *pedometer minutes*.

Strict adherence to TPB implies that only purely cognitive attributes of the behaviour are used (Ajzen, 2006; Beaton & Funk, 2008). With this focus, the TPB leads back to West’s (2005) argument that physical activity can affect and be affected by behaviours in ways that are not necessarily under conscious control. West’s (2005) argument combined with TPB’s confusing and practically difficult theory (Beaton & Funk, 2008) suggests that this theory is not the most practical with which to model behaviours in a large population.

With respect to Beaton and Funk’s (2008) criteria, TPB’s framework is very sophistic and difficult to understand so it fails criterion 1 (Hardeman et al., 2002).

Criterion 2 is met as, by measuring attitudes and intention, TPB provides functional meaning across paradigms. By not considering known determinants such as past behaviour and motivation TPB fails to meet criterion 3. The research and theoretical focus of TPB appear to have been rigorously tested and do seem to describe the inputs, processes and outputs. However the reported findings are ambiguous therefore these criteria cannot be fully determined. Hence TPB partially meets criteria 4 and 5.

Like SDT, the sophistic nature of TPB makes it more difficult to apply in practice. Furthermore, like TTM, TPB omits known determinants of PA. Therefore, TPB needs to be strongly considered before using as PA behaviour model.

The health belief model.

The health belief model (HBM) is a medical framework. It suggests an individual's decision to adopt, or cease, a given health-related behaviour is solely dictated by disease threat and the perceived outcomes of the behaviour on that disease. Described as an "illness avoidance" model, HBM was originally developed in the 1950s to understand the failure of a tuberculosis-screening programme (Buckworth & Dishman, 2002). Further modifications allowed for better modelling around more complex issues such as sexual activities and HIV/AIDS prevention (Green, 2002).

HBM is based around four key perceptions representing the advantages and disadvantages of adopting certain behaviours. These are: susceptibility, or the likelihood of developing the disease; severity, including the long-term consequences of the disease; benefits and barriers to the behaviour (Rosenstock, Strecher, & Becker, 1988). A cue to action, either internal or external, must occur to stimulate the appropriate behaviour. Internal cues may be signs or symptoms of a disease

state; for example, deciding to quit smoking after developing angina. External cues may be health advice or advertising, such as watching a television advert on influenza vaccinations (Becker, Maiman, Kirscht, Don, & Drachman, 1977).

Self-efficacy, as previously described, was added to the model later to better accommodate habitual behaviours such as smoking cessation or physical activity (Rosenstock et al., 1988). Recent applications of HBM include predicting compliance intentions to tailor education to improve behaviours in certain areas. Examples include determining antibiotic therapy compliance in young adults or condom use in Ghana (Adih & Alexander, 1999; Sangasubana, Yang, Bently, Thumula, & Mendonca, 2008).

Applications of HBM within the PA realm include assessing drop-out rates from a cardiac rehabilitation programme (Oldridge & Streiner, 1990). The model was able to provide a modest improvement for predicting group composition of compliers and non-compliers within the rehabilitation programme (Oldridge & Streiner, 1990).

However, HBM does not fully explain the behaviours associated with PA. It is a psychological model and so does not account for other aspects such as demographic, social, personality or structural factors (Harrison, Mullen, & Green, 1992). For example, an individual may consider good health to be important, but financial reasons may compel them to live in a neighbourhood with a high level of air-borne pollution. Others may be motivated towards PA for social or appearance-based reasons rather than for health. This suggests the model is not ideal for predicting PA behaviours. Furthermore a meta-analysis of studies suggests that HBM lacks predictive validity (Harrison, Mullen, & Green, 1992). These

researchers also raised concerns that different studies may not have measured the same construct despite giving it the same name.

HBM fails Beaton and Funk's (2008) criteria 1, 2, 3 and 5 and only partially satisfies criterion 4. It implies that that *physical inactivity* should be viewed as a disease for which physical activity is the cure. It is recognised that physical activity may be undertaken for different motivations and that the health benefits derived from such activity may be an incidental by-product. Therefore, HBM does not have functional meaning in the current social setting, nor can it holistically account for the phenomena of behaviour change thus failing criteria 1 and 3. HBM can only be applied within the medical setting and therefore it cannot provide for functional meaning across paradigms; thus failing criterion 2. By excluding demographic, social and other factors, HBM further fails criterion 3 by not holistically accounting for the behaviour change. It does partially satisfy criterion 4 as it partially explains some of the inputs and processes that result in the output of PA expression. Finally, Harrison and colleagues (1992) raised concerns about the testing and evaluation of HBM; therefore this model fails to meet Beaton and Funk's (2008) criterion 5.

HBM is the weakest model to be evaluated as it fails four of the five criteria and only partially satisfies the fifth. As this research does not investigate PA as a specific health-related behaviour, it is definitely not an appropriate model to use with this research.

Schema theory.

Schema theorists propose that all individuals possess *categorical rules* or *scripts* that are used to interpret the world. When presented with new information, individuals have three main responses: *accretion*, *tuning*, and *restructuring*. With accretion, the individual incorporates new information into existing schema

without making changes to the overall belief. Tuning is where the individual realises that their existing schema is inadequate and so modifies it accordingly with the new information. Finally, restructuring is the process by which the individual creates a new schema that addresses the inconsistencies between the old schema and the new information. These responses occur in multiple domains over a continuous timeframe and may occur consciously or unconsciously (Widmayer, 2007).

With respect to PA, individuals can be described as schematic when they consider being physically active to be extremely self-descriptive and extremely important to their self image (Kendzierski, 1994). This can result in people failing to develop a self-schema around PA when their behaviour warrants it. For example, the retired couple who walk for several kilometres each day “to see what is new in the neighbourhood” may not consider themselves to be physically active. Conversely, the busy office-worker who gets out for a few hours cycling in a bunch-ride on the weekends may think of themselves as physically active and be schematic towards PA, even though they do not meet the recommended levels of PA for health.

The central concept of schema theory towards improving PA adherence is that the more that an individual sees themselves involved with a certain physical activity, the more that individual is likely to take part in that physical activity (Kendzierski, 1988). This occurs as a series of decisions where the individual’s complete worldview including past behaviours and emotions are taken into account.

When viewed in this fashion, schema theory highlights the failings of the expectancy-value theories, as used by TPB and HBM, to understand PA adherence. However, schema theory was developed to highlight the shortcomings of other theories and was never envisioned to be widely applied in practice (Kendzierski, 1994).

Schema theory meets criteria 1 and 2, but fails criteria 3 to 5. Its central concept takes the person's complete view into account and so is congruent with conventional wisdom; thereby meeting criterion 1. The simplicity of the schema theory framework provides functional meaning across paradigms and so meets criterion 2. However, the framework does not address known determinants of participation and does not provide a holistic description of participation; thus failing criterion 3. Finally, there is no attempt to identify inputs, processes and outcomes and there are major difficulties associated with the classification procedures to allow for rigorous testing. Therefore schema theory fails criteria 4 and 5.

Schema theory, like TPB and TTM does not address known determinants of PA and there are also significant difficulties with inclusion into this type of research. It will not be considered for use in this thesis.

Sport commitment model.

The sport commitment model (SCM) is a social-psychological approach to understanding the decisions made by an individual to *continue* their sports participation (Beaton & Funk, 2008; Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993).

SCM is broken down into five key constructs that collectively determine the individual's psychological commitment towards participation: 1) Level of enjoyment; 2) involvement alternatives; 3) personal investment; 4) social constraints, and 5) involvement opportunities. More recently, a sixth construct of social support was proposed (Scanlan, Russell, Beals, & Scanlan, 2003).

The main strength of SCM is its focus on understanding the individual's meaning for participation through constructivist techniques. The approach of assessing the enjoyment construct is rarely mentioned with other frameworks yet this

construct has been shown to have a positive effect on continued participation (Beaton & Funk, 2008). Although SCM has a significant focus on participation enjoyment, *continued* participation is the main focus. This thesis however, is focusing on novice participants, especially those who were previously sedentary or only recently become active.

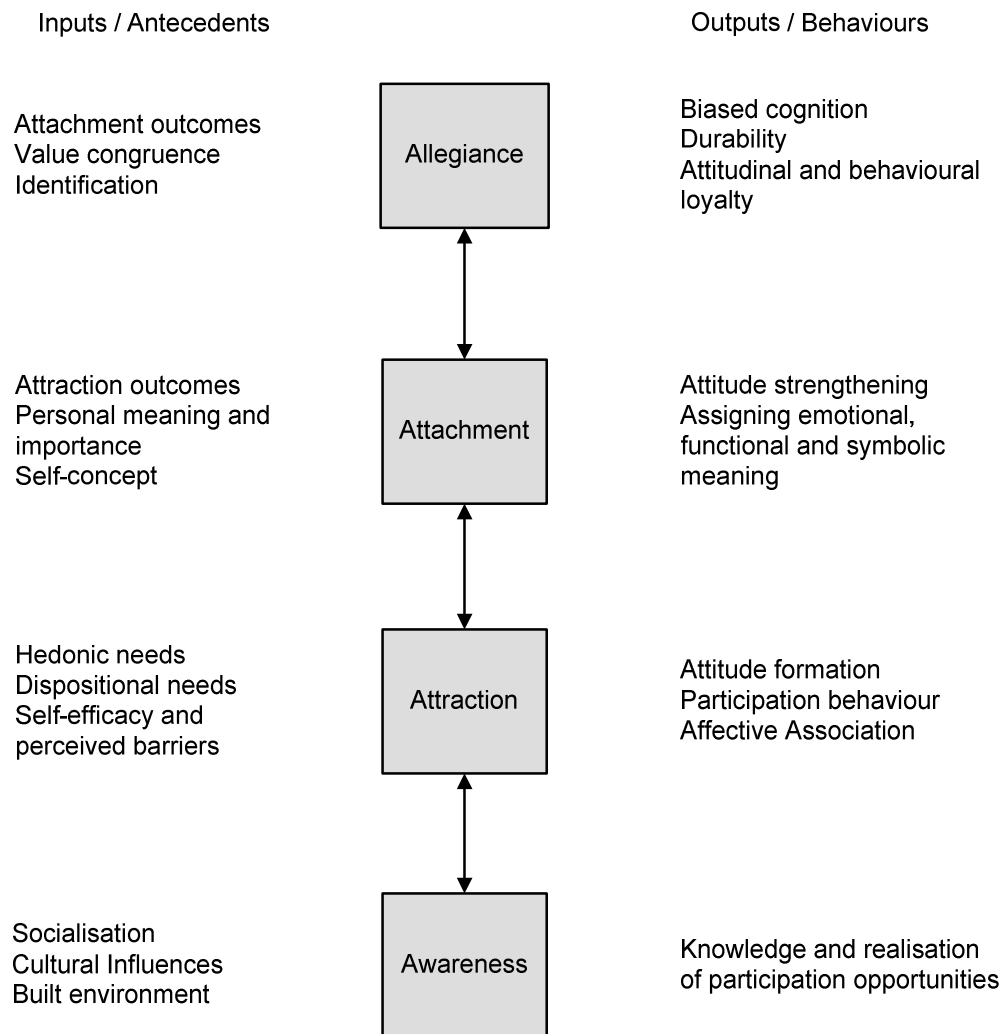
SCM, like schema theory, takes the person's whole view into account and with its simplicity, meets criteria 1 and 2. However, SCM focuses on continued participation and omits a holistic understanding of initial participation; thus failing criterion 3. SCM is only qualitatively rigorous and does not fully quantify inputs, processes and outputs. It also had its methodologies criticised for poor construction; thus failing criteria 4 and 5.

SCM focuses on *continued* participation and is only qualitatively rigorous. As this research will be a) quantitative and b) have a focus on new participants, SCM is not an appropriate model to use.

Psychological connection model

The current models used to understand behaviour change do not necessarily explain the behaviours displayed with respect to long-term changes to physical activity. The psychological connection model (PCM) is developed from a number of disciplines, including sociology, psychology, consumer behaviour and marketing. It proposes that the psychological connections between an individual and an activity/sport or team are governed by the complexity and strengthening of sport-related mental associations (See Figure 5) (Beaton et al., 2009; Funk & James, 2001, 2006). By understanding the degree of relationship an individual has towards their activity or sports team, it can assist with understanding subsequent behaviours.

Figure 5. The psychological connection model.



Source: Adapted from Beaton et.al. (2009)

Individuals can become connected with activities and with sports teams on different levels, from being vaguely aware of the concept of a particular sport/activity, to being so strongly connected to an activity or sports team that they plan many of their actions around them. For example, the triathlete who plans the family holiday in Rarotonga, so they can participate in the Rarotonga Triathlon. Others may be so strongly connected to a certain sports team to the extent that a feeling of *personal* success or loss occurs; depending on the outcome of the latest

game/event. PCM describes motives related to the sports object and evaluative processes by which a person internalises features of their social situation. (Funk & James, 2001, 2006)

This concept of psychological connection was originally believed to be on a continuum, hence the original name of psychological continuum model (Funk & James, 2001, 2006). However, it was later learnt that the four main stages associated with the PCM have different characteristics and influences (Beaton et al., 2009). Furthermore, it is necessary to classify study participants into their respective stages to: 1) validate the stages; and 2) understand how individuals transition between stages. As a stage-based system is incongruent with a continuum, the name was changed to psychological connection model (Beaton et al., 2009).

The first stage within PCM is *awareness*. Here, an individual is introduced to the activity or team; however there is no psychological connection. This process primarily occurs via socialisation and may begin during childhood. Awareness continues over time with such actions as the emergence of new sports or teams, moving to new locations or supporting someone (e.g. partner or child) who has an interest in an unfamiliar sport. Participation has not occurred in an uncoerced manner even though the individual may be aware of various opportunities.

Attraction is reached when the individual consciously decides to meet a need or seek benefits from participation in the activity. This may be as simple as deciding that they have a favourite activity or sports team. This decision may be influenced by factors such as deciding to follow the local team or to emulate a star athlete's success, or hedonic motives such as enjoyment or being entertained. An opportunity to be with friends may even influence a person to join a local sport's team. The key

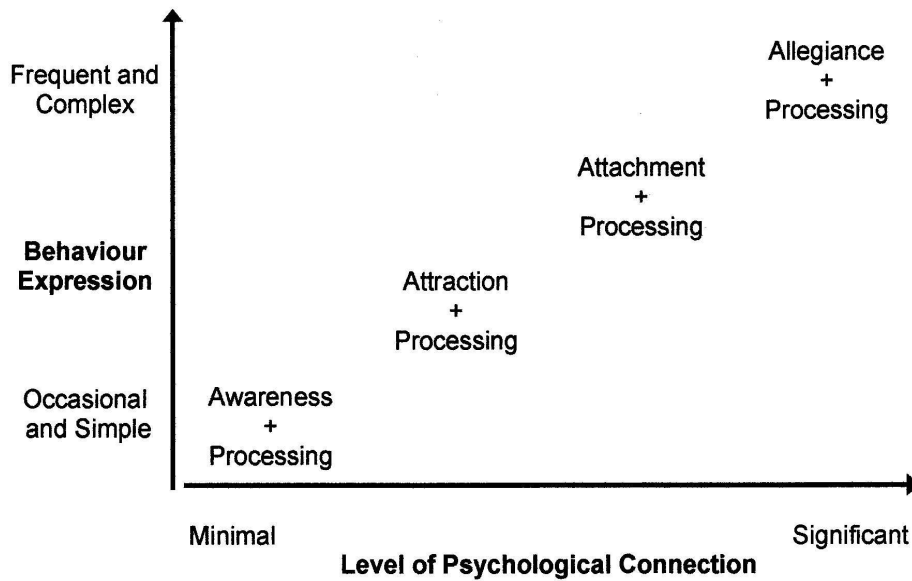
characteristic is that although a rudimentary psychological connection is being formed the preference is not enduring.

The third platform is *attachment* and occurs when the individual develops an emotional connection to the sport or team. This connection is valued, protected and linked to other personal attributes. When discussing a sports-fan's relationship with their team, the individual could be described as "feeling part of the team" rather than simply "having a favourite team". An athlete may describe their activity as being "part of who they are". The attraction outcomes have become collectively integrated with the individual's core values and self-concepts. This forms the basis of emotional, functional and symbolic meanings towards the particular activity. Attitudes and behaviour patterns have become more predictable and stable.

With *allegiance*, the attachment dimensions become enduring and resistant to change. The durability of the relationship remains unchanged over time and in the face of counter-persuasive information: For example, the cyclist injured in traffic accident who re-commences cycling as part of their rehabilitation. The psychological connection is so strong that it causes cognitive processing to become biased and will guide behaviour. There is an internally stable and consistent evaluation of the individual's relationship with the activity, sport or team.

Although it would reasonable to assume that behaviour demonstrating increased engagement with an activity would increase as an individual increases their psychological connection with that activity. However, as human behaviour is complex; the "ideal" linear behaviour as shown in Figure 6 may not occur.

Figure 6. Non-linear progression of PCM.



A significant strength of PCM is that movement through this framework is not regulated with the temporal rigidity that is found in TTM (Beaton et al., 2009; Funk & James, 2001). Furthermore, movement can occur in either direction (Beaton et al., 2009; Funk & James, 2001). For example, from the passive leisure domain, the number of fans interested in their national team can increase rapidly when the team performs well at an international competition (e.g. FIFA World Cup). After the team has been eliminated, the level of interest and connection towards the team can just as swiftly be eroded.

A person's PCM stage is calculated by a series of three involvement facets termed *pleasure*, *centrality* and *sign*. These facets have been derived from the consumer involvement profile revised into a leisure context (Beaton et al., 2009). They can be described as follows: 1) pleasure – the combination of enjoyment, interest and importance associated with the activity; 2) centrality – how significant or predominant the activity is to the individual's lifestyle; and 3) sign – the symbolism or self-expression value that the activity represents (Beaton et al., 2009). It should

be noted that importance can take on several aspects. An individual may assign importance to an activity based on extrinsic motivations such as tangible rewards or weight loss. Achieving a goal, even if extrinsically motivated, is enjoyable. Thus importance can be assigned to the pleasure facet. Importance can also be a significant aspect of centrality: If the activity is pivotal to the person's lifestyle, then it has a high level of importance.

To calculate a person's PCM stage, three statements are given for each facet with the person being asked to rank their level of agreement from *strongly disagree* to *strongly agree* on a seven-point Likert scale (Funk, 2008). Pleasure is measured by the questions: 1) playing/taking part in X offers me relaxation when pressure builds up; 2) I really enjoy playing/taking part in X and 3) compared to other sports, playing X is very interesting. Centrality is measured by the questions: 1) I find a lot of my life is organised around playing X; 2) playing/taking part in X has a central role in my life and 3) a lot of my time is organised around playing/taking part in X. Sign is measured by the questions: 1) participating in/playing X says a lot about who I am; 2) you can tell a lot about a person by seeing them participate in X and 3) when I participate in X, I can really be myself.

Each of the three scores from each facet is averaged, giving a facet score. This facet score is then rated *Low* if ≤ 4.5 , *Medium* if $4.5 < 5.75$ and *High* if ≥ 5.75 (Funk, 2008). The final PCM stage can then be derived from Table 2.

Table 2: Distribution of Involvement Facets across the PCM Stages

Awareness			Attraction			Attachment			Allegiance		
P	C	S	P	C	S	P	C	S	P	C	S
L	L	L	M	L	L	L	L	M	M	H	H
			H	L	L	L	L	H	H	H	M
						L	M	L	H	M	H
						L	M	M	H	H	H
						L	M	H			
						L	H	L			
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						M	M	M			
						M	M	H			
						M	H	M			
						H	L	M			
						H	M	L			
						H	M	M			
						H	L	H			
						H	H	L			

Source: Adapted from Funk (2008)

Involvement facets: P – Pleasure; C – Centrality; S – Sign

Alternatively, the following algorithm (adapted from Funk, 2008) may be used:

- 1) If all three facets = Low, then stage is *Awareness*, if not then,
- 2) If pleasure rank = Low, then stage is *Attachment*, if not then,
- 3) If both centrality and sign = Low, then *Attraction*, if not then,
- 4) If any two facets = High, then *Allegiance*, if not then,
- 5) All else = *Attachment*.

PCM has not been widely applied in the PA domain. It was originally designed as a framework that may account for sport fans' behaviours (Funk & James, 2001). Since its inception the concepts have been discussed in further research including fan loyalty within sports tourism and sports marketing (Cunningham & Kwon, 2003; Funk, Ridinger, & Moorman, 2003; Funk, Toohey, & Bruun, 2007; Gi-Yong & Hardin, 2008; Kulczycki & Hyatt, 2005; Toohey, Taylor, & Lee, 2003). PCM has also been used to assist in the development of further models to explain sports fan behaviours (Al-Thibiti, 2004; Funk & James, 2004; Funk et al., 2003).

As PCM is a relatively new theory to explain behaviour change there is insufficient literature to be able to fully assess it against Beaton and Funk's (2008) criteria. It is considered to be congruent with conventional wisdom due to its key terms and language, thereby meeting criterion 1. Due to its interdisciplinary foundation, PCM's framework demonstrates functional meaning across research paradigms, thus meeting criterion 2. Criterion 3 cannot be determined as PCM has currently only been applied and tested in passive participation. Therefore, it is uncertain if it holistically accounts for the phenomena of behaviour change in *active* leisure. However, as shown in the Figure 5, environmental, social and cultural factors are included as inputs for the awareness stage. Furthermore, active participation is considered to be an attraction output and attachment input (Beaton & Funk, 2008). These factors are the ones most criticised by Beaton and Funk (2008) as being omitted by other models, thereby strengthening this criterion. Criterion 4 is met due to the inputs, processes and outputs being clearly defined; however, criterion 5 also cannot be assessed as there is no research within the physically active leisure domain that would determine if the measures are applicable.

Choice of Model

As summarised in Table 3, none of the models described above fully satisfies Beaton and Funk's criteria.

Table 3: Comparison of Different PA Theoretical Frameworks

Theoretical framework	Criterion				
	1	2	3	4	5
Health Belief Model	X	X	X	%	X
Self Efficacy Theory	X	X	X	%	%
Self-Determination Theory	√	√	%	%	%
TransTheoretical Model	X	%	X	√	√
Theory of Planned Behaviour	X	√	X	%	%
Schema Theory	√	√	X	X	X
Sport Commitment Model	√	√	X	X	X
Psychological Continuum Model	√	√	?	√	?

Symbols: √ - satisfies criterion; X - does not satisfy criterion; % - only partially satisfies criterion; ? – undetermined.

Note. Criteria: 1) Congruent with conventional wisdom; 2) Possess functional meaning across paradigms; 3) Holistically account for the phenomena; 4) Describe inputs, processes and outputs; and 5) Allows for rigorous testing and evaluation.

Source: Adapted from Beaton and Funk (2008)

PCM was chosen as the theoretical behavioural-change model for this research as it has a strong framework and a high potential for being the strongest theoretical model. It is recognised though, that PCM is limited by its lack of robust testing in the active leisure domain. However, other models have more substantial limitations as described below. SET is incorporated into other models including HBM and TPB. This suggests that while the concept of self-efficacy is important to understanding behaviour change within the active leisure domain, SET is not the most appropriate theory to use if it has been incorporated into other models. This research intends to explore a number of motives that that influence, and may assist in

understanding changes to, participants' PA levels. This will include determinants such as past behaviours. This means that TPB is less appropriate to be used as these known determinants of motivation are not examined by the model. Furthermore, when used, findings based on TPB are also reported to be ambiguous; using a model with more clarity is more appropriate. Motive exploration also means that HBM is not appropriate for use as its central precept is that people's behaviours are solely determined by the threat of disease. Yet it is known that people may participate in PA for hedonic or other motives. HBM becomes even less appropriate as it is designed to be used within a medical framework, whereas, this research is based on the participation research-practice paradigm. TTM, being another medical framework, is also inappropriate for use. TTM is becomes even more inappropriate due to its strict temporal rigidity and because it only focuses on conscious decision making (West, 2005). Schema theory was never envisioned to be applied in practice (Beaton & Funk, 2008). This research is focusing on novice participants, especially those who were previously sedentary or only recently become active. Although SCM has a significant focus on participation enjoyment, *continued* participation is also a key concept. Therefore this model is not suitable to be used with those new to participation. Although SDT, at minimum, partially satisfies all of Beaton and Funk's criteria and would be feasible to use; it is a complicated theory to apply in practice.

PCM meets all of the criteria in the Beaton and Funk (2008) assessment with the exception of criteria 3 and 5 where it could not be fully determined. The disadvantage to using PCM is that there are few applications in the area of active leisure.

Furthermore, PCM could be the basis for an overall *theory of participation*, as described by Beaton and colleagues (2008; 2009). This theory of participation would be a theory used by *all* agencies aiming to increase the level of participation in physically active leisure. These agencies include public health organisations, sporting bodies, and policy makers. As previously described, there are a number of theories and frameworks used to understand changes to PA and different groups prefer different models. PCM is theoretically a sound platform for understanding PA participation that can be used by all agencies with which to plan interventions to improve population health. A significant body of research will be required to achieve this. This thesis will be one of the first applications of PCM in practice and as such be able to add to this body of knowledge.

Summary

As previously stated PA research is important as, globally, people are becoming more sedentary. Sedentary behaviour has been described as the second leading cause of preventable death and these health impacts are independent of those caused by obesity. There is a “paucity” of research in the MPSE domain despite many race directors claiming health benefits for their participants. Undertaking research to determine who participates in an MPSE and whether there is a sustained increase in PA will provide a basis from which to understand if there are indeed health benefits from these events.

The final aim of this thesis is to explore the applicability of PCM in examining physically active leisure. There are many models and theoretical frameworks for which to understand behaviour change. However, none of them can fully explain behaviour change. PCM has had few applications in the active participation leisure domain. This means that it has been unable to be assessed

against Beaton and Funk's (2008) criteria. This thesis may provide some of that assessment. If PCM can be assessed rigorously and be shown to holistically account for the behaviour change, its simplicity will enable less robust models to be retired. PCM would also assist with the development of a theory of participation and perhaps allow for further understanding of the human psyche.

**Study One: The Ability of a Women-Only Mass Participation
Sporting Event to Facilitate a Long-Term Increase in Physical
Activity**

Running head: women only mass participation sporting event

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Keywords: physical activity, mass participation sport events, triathlon,
women

Abstract

Mass participation sporting events (MPSE) are being positioned as a means of increasing population physical activity (PA) despite little evidence supporting this claim. Three surveys collected data at four time-points. This research aimed to identify the participant demographic, motivational and PA profile of a segment ($n = 452$) from a women-only non-elite triathlon race series (300m swim, 10km cycle, 3km run/walk) that attracts in excess of 5000 women annually. This research also aimed to identify whether PA in previously insufficiently active participants increased before the event, and remained elevated three months after the event. The results showed that the participants were predominantly well-educated middle-aged mothers who reported a very high level of PA prior to the event. Although their PA levels decreased three months after the event, the levels predominantly remained sufficient for good health. Very few women were inactive pre-event; however 46% of the women who were inactive prior to event preparation remained sufficiently active three months after their event. MPSEs have the potential to encourage previously inactive women into sufficient levels of PA, facilitate a long-term increase in PA, and encourage long-term maintenance of PA in those already active. MPSE may have an additional benefit of assisting already active people to remain active.

Introduction

Inactive lifestyles are one of the leading preventable risk factors for mortality^[1]. However, approximately 50% of Australasian's do not achieve sufficient physical activity (PA) to maintain good health^[2, 3]. The concept of sporting events contributing to increased PA levels is not new. Increased PA has often been assumed to be a legacy of large-scale, elite sporting events (e.g. Olympics)^[4, 5], despite the lack of evidence supporting these claims^[4-6]. Rather than relying on inspiration and role modelling for these events to increase PA, mass participation events (e.g. fun runs, cycling events, community walks) have a direct association with PA. This connection has been recognised with physicians in Britain receiving advice to encourage their patients to participate in mass participation sporting events (MPSE)^[7]. However, there remains little evidence that these events are effective in increasing long-term PA and consequently, improving population health^[5].

Methods

The purpose of this study was to determine the ability of a MPSE to facilitate a long-term increase in PA. A three-phase, longitudinal study collected data from participants in a number of women-only triathlon events. The two objectives of this study were to: 1) establish a demographic, physical activity and motivational profile of participants in a women-only MPSE; 2) determine changes to participants' PA levels from the time of entry until three months after the event. The first objective assessed the event's ability to attract participants who were recently insufficiently active. The second objective assessed the event's ability to facilitate a long-term increase in PA. Ethical approval was provided by the AUT University Ethics Committee (AUTEK).

Participants completed three surveys. Participants registering online at least seven days prior to their first event were invited to participate in the study via an email from the race director. The purpose of the seven-day exclusion criterion was to balance the confounding features of falsely high PA levels while maximising participant numbers. The race director's email led the race participants to survey one, which collected data for two time points – when preparation for the event commenced (T0) and race entry (T1). This distinction was made as participants vary as to when they begin preparation for the event and when they actually enter the event. Survey two was completed the week following their first event (T2). The first event was emphasised as many women participate in multiple events throughout the season. No data from survey two is presented in this study. Survey three was administered three months after the event (T3). Participants declared informed consent when they commenced each survey.

All online entrants to the ten-event 2009 MoreFM Triwoman series were invited to take part in this study. The series is clearly marketed to non-elite athletes as the race distances are at the short end of the triathlon continuum (i.e. 300m swim, 10km cycle, and 3km run/walk) and the event offers no merit awards or prize money. The Triwoman is a popular race series with numbers in excess of 5000 annually throughout New Zealand. Promotional material for the event emphasise fun, social interaction and the benefits of exercise.

The questionnaires were designed so that survey one provided the demographic, physical activity and motivational profile of participants. Data describing age, household status, employment status, and highest educational qualification were collected. In this section of the survey, the question prompts emphasised “*At the time you began preparation for the event...*” (i.e. T0). Physical

activity at the time *preparation for the event commenced* was retrospectively self-assessed as being “vigorous active for at least the last six months”; “moderately active for at least the last six months”; “vigorous active for less than six months”; “moderately active for less than six months” or “not yet sufficiently active.”

Consistent with New Zealand-based recommendations^[8], “sufficiently active” was defined as at least 30 minutes per day on five or more days per week. Vigorous activity was described as “running or cycling” and moderate activity as “walking.”

The target group for analysis were those women sufficiently active for less than six months (both moderately and vigorously active) and those women insufficiently active^[8]. The women’s motivations towards physical activity at the time *preparation for the event commenced* were assessed using an abbreviated form of the Exercise Motivations Inventory (EMI-2) survey^[9]. At 52 items across 14 subscales, the full EMI-2 was deemed too long given the other scales present in the survey. A panel with expertise in physical activity motivation developed an abbreviated version of the EMI-2. The abbreviated version excluded the Nimbleness, Revitalisation, and Health Pressures subscales and combined Ill-health Avoidance and Positive Health subscales into a single construct called Health. The panel also identified the items within each of the subscales best suited to the study. The abbreviated EMI-2 consisted of 11 subscales and 23 items: 1) Challenge (To give me goals to work towards, To give me personal challenges to face); 2) Competition, (Because I enjoy competing, Because I enjoy physical competition); 3) Enjoyment, (Because I enjoy the feeling of exerting myself, For enjoyment of the experience of exercising, Because I feel at my best when exercising); 4) Positive Health, (Because I want to maintain good health, To feel more healthy); 5) Ill Health Avoidance, (To avoid ill-health, To prevent health problems); 6) Stress Management, (Because it helps to

reduce tension, To help manage stress); 7) Strength and Endurance, (To build up my strength); 8) Weight Management, (To help control my weight, Because exercise helps me to burn calories); 9) Appearance, (To improve my appearance, To look more attractive); 10) Social Recognition, (To show my worth to others, To gain recognition for my accomplishments); 11) Affiliation, (To spend time with friends, To enjoy the social aspects of exercising, To make new friends).

In addition to the commencement of preparation data, survey one also collected *race entry* data (i.e. T1). All questions from T0 were repeated with the question prompt now emphasising “At the current time...” The one exception to this was the retrospective self-assessment of physical activity, which was replaced by the well-validated New Zealand Physical Activity Questionnaire-Short Form (NZPAQ-SF) ^[8]. Time spent in PA is the primary outcome variable for the NZPAQ-SF. Participants were classified, in accordance with New Zealand recommendations, as sufficiently active (i.e. > 30mins of PA on five or more days per week), insufficiently active (i.e. >30mins of PA per week but less than sufficiently active threshold), or sedentary (less than 30 minutes of physical activity over the week). The NZPAQ-SF was not suitable for use in the T0 section of the survey because participants could not be expected to recall their minutes of PA with any level of accuracy.

Survey three, administered three months after the first event (i.e. T3), used the T1 questions from survey one (i.e. NZPAQ-SF, EMI-2) with the addition of the PA self-assessment question from T0. Survey two and survey three question prompts emphasised “At the current time...”

Analysis

Consistent with IPAQ guidelines^[10], NZPAQ activity time was truncated to 180 minutes per activity. The results are reported in minutes to allow consistency for comparing to the New Zealand recommendations of “30 minutes a day on 5 or more days of the week”^[8]. Recognising the benefits conferred by more intense physical activity, the minutes of vigorous activity were weighted by a factor of two^[11]. The vigorously and moderately active categories from the retrospective physical activity question from the T0 part of survey one were consolidated. Therefore, the retrospective physical activity levels are: (1) “sufficiently active for more than six months,” (2) “sufficiently active but for less than six months” and (3) “not yet sufficiently active.” Repeated measure analysis of variance with Tukey’s post hoc test determined the differences in variables, such as demographic, motivational and PA data, between the three physical activity levels. As this established no significant statistical difference between the latter two categories in any variable, the final categories for the NZPAQ analysis are termed “Long-term active” (those sufficiently active for more than six months) and “Short-term / Insufficiently active.” The latter effectively combined people categorised as “not yet sufficiently active” with those categorised as being “sufficiently active but for less than six months” thus consolidating the target group. Matched analysis compared PA data at T0 and T3 for the physical activity statement and also compared the NZPAQ-SF at T1 and T3. Differences between time points were analysed with t-tests. All data were analysed using SPSS (Version 16).

Results

The participants' characteristics showed no statistical differences between those who completed the first survey (n = 452) or all three surveys (n=95). Their demographic data and baseline physical activity status are summarised in Table 4.

Table 4: Triwoman Participant Characteristics

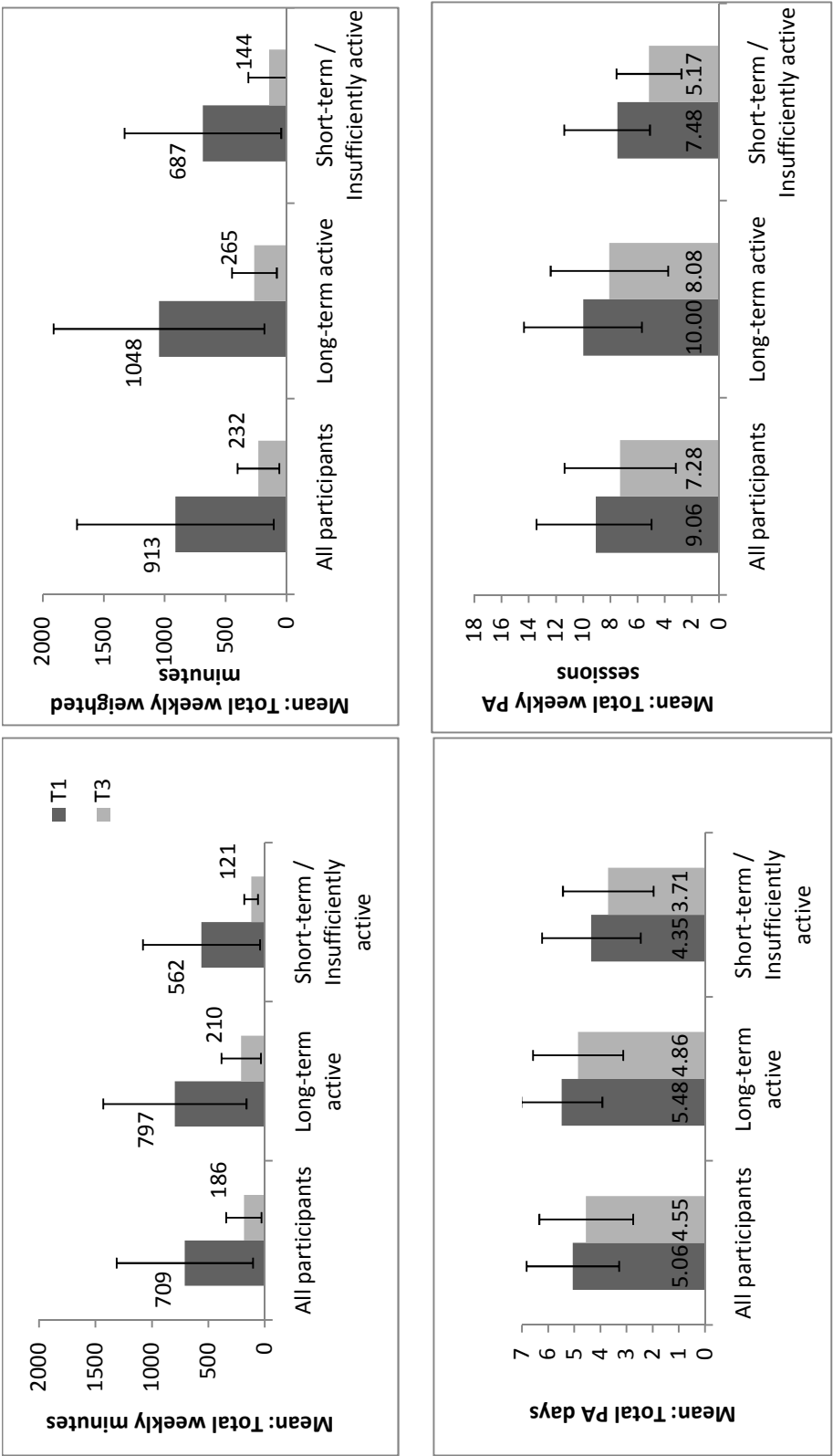
Demographics	Participants (n=452)	
	Frequency	Percentage
Age Group		
<29	76	17%
30-44	259	57%
45-59	102	23%
>60	15	3%
Highest educational qualification		
None	13	3%
Secondary School	106	23%
Tertiary	224	50%
Other complete qualification	109	24%
Household composition		
Partner only	118	26%
Partner and children	234	52%
Children only	25	6%
Other	75	16%
Employment Status		
Working full-time	269	60%
Working part-time	88	19%
Full-time Mother	74	16%
At home/Retired	7	2%
Unemployed	3	1%
Student	11	2%
Baseline physical activity status		
Sufficiently active - more than six months	284	63%
Sufficiently active - less than six months	112	25%
Not yet sufficiently active	56	12%

Using New Zealand census data as a benchmark, the results suggest that a number of demographic segments of New Zealand's female population are overrepresented among the event's participants (Triwoman participants vs NZ census data). This is evident in the proportion of women aged between 30 and 44 years (57% vs 23%), women with educational qualification beyond high school (73.6% vs 29%) and women in fulltime employment (59.5% vs 34%). The majority of participants live with their partners (78%) while 58% live with their children. Most participants (63%) were sufficiently active before preparing for this event. Taken together, just over one third of participants were either "not yet sufficiently active" (12%) or had been sufficiently active for less than six months (25%). Complementing these relatively low levels of physical inactivity are data indicating that 84% of participants were previous event participants.

Key motivations towards PA were defined as one in which more than 50% of participants scored "High," or a mean of greater than 5, for the motivation construct. The key motivations when event preparation commenced were Challenge (81% scored "High"), Competition (70%), Enjoyment (67%), Health (64%), and Stress Management (55%). With the exception of Enjoyment, there were no significant differences between the Long-term active group compared to the Short-term /Insufficiently active. Enjoyment was a more significant motivator for the Long-term active group (74%) compared to the Short-term /Insufficiently active group (54%) ($p < 0.001$).

The second research question sought to determine changes to participant's PA levels from the time of entry (T1) until three months after the event (T3). Participants' PA levels were high at T1 then declined by T3 (See Figure 7).

Figure 7. Physical activity from NZPAQ-SF measured over the seven days preceding T1 and T3.



Participants at T1 were, on average, active for 709 minutes (SD = 604) over at least five days during the week. At T3, the average participant averaged 186 minutes (SD = 156) over only 4.6 days of the week. This decline was further evidenced by the weighted minutes, which declined from 913 minutes (SD = 807) to 232 minutes (SD = 170). Interestingly, activity days and sessions only declined to approximately 80% from prerace levels with activity days declining from a mean of 5.06 days (SD = 1.77) to 4.55 days (SD = 1.79) with sessions declining from a mean of 9.06 (SD = 4.37) to 7.28 (SD = 4.09).

At T1, using New Zealand PA recommendations, Long-term active group participants were 50% more likely to be sufficiently active compared to those in the Short-term/Insufficiently active group. The Long-term active group's engagement in 34% more activity sessions and 42% more activity minutes underpins this difference.

The number of women who reported being sufficiently active for at least six months increased by approximately 15% between T0 and T3. Some positive results were observed regarding the small number of women (n=18) who were active for less than six months prior to their first event. At T3, 11 of these 18 women now described themselves as "active for at least six months." This represents a 61% maintenance rate. Furthermore, at the time of race entry, 13 women were insufficiently active as according to the NZPAQ data and New Zealand PA recommendations. However, at T3, six of these women (46%) had transitioned into being sufficiently active for more than six months.

Discussion

The results indicate that the event attracts predominately middle-aged women who live with their partners and children. They are further characterised by possessing post high school qualifications and are in fulltime employment. The relationships between socioeconomic status (SES), education and fulltime employment on healthy behaviours are well established ^[12]. The event-related costs (e.g. entry and bicycle) may be prohibitive for some women.

The participant profile for this event showed that 58% lived with their children. When considered alongside of the age of participants, it is likely that the majority of the children are less than 12 years of age. Previous research demonstrates that 1) women of all ages are less likely than men to reach sufficient levels of physical activity required for good health, with mothers of young children faring the worst and 2) women who prioritise PA, especially when PA and health was seen as both as enjoyment and as part of their responsibilities as a wife and mother, were more likely to be active ^[13]. This seems plausible in this study. The promotional material emphasised improved health and wellbeing and encouraged women to make themselves the priority by ensuring that both spouse/children actively engaged in activities to provide the necessary time for training.

Challenge and competition were the key motivations. This corresponds with earlier research that found that challenge and competition were the two greatest motivations for both elite and non-elite triathletes ^[14]. Enjoyment was the only motivating factor that significantly differed between the Long-term active and Short-term/Insufficiently groups. Consistent with previous research ^[15], these results highlight

that those people who enjoy their engagement in PA, are those most likely to sustain their PA.

The physical activity profiles show that the majority of women were physically active before preparing the event, suggesting that the public health benefits of these entry-level races may be smaller than those claimed by race directors. Whilst this may be the case, the role that these events play in facilitating those already active into even higher levels of physical activity, should not be ignored. It is known that without a behavioural intervention, 50% of people are likely to cease newly adopted PA behaviour within six months of commencement^[16]. For those already active, MPSE may be a “recurring behavioural intervention” that facilitates sustained, high levels of PA. Thus MPSE could provide public health benefits by preventing relapse from sufficient levels of physical activity for health benefits.

The changes to PA levels permit a number of conclusions. First, MPSE are capable of stimulating high levels of PA prior to the event. Despite the event being expected to stimulate PA behaviours in all participants in the weeks immediately prior to the event, the number of minutes and activity sessions reported was higher than anticipated. Even those women previously sedentary or insufficiently active reported, on average, PA three to four times greater in duration than recommended for health. Second, MPSE are able to stimulate long-term PA behaviours patterns. Six of the 13 previously inactive women in the cohort described themselves, three months after the event, as remaining sufficiently active. This is further supported by an increase in PA one month following a non-competitive cycling MPSE^[2]. Taken together, these two issues reinforce and support the advice given to British physicians that MPSE may be a

useful “prescription” to increase PA levels ^[7]. Third, anomalies in PA measures are problematic. For example, 92% of participants were active for more than the recommended 150 minutes of physical activity per week at time of race entry. In fact, the participants averaged more than 700 minutes of weekly PA. However, nearly one third of the participants were deemed to be “not regularly active” because their PA was not distributed across *five or more days* throughout the week, as per New Zealand recommendations ^[8].

There were a number of limitations to this study. It is unknown as to the number of participants who received the survey invite as only team captains and individuals who entered the event online received the invite. Those who did not receive a survey invite included those who entered via a postal entry and team members. The survey appears to have oversampled returning participants. Eighty-three percent of our samples were returning participants, significantly higher than the 40-50% estimated by the race directors. The earliest opportunity to collect data was at time of entry, which restricts the ability to collect accurate data at a time close to when the decision to enter is made and when preparation commences. Furthermore, the results indicate that physical activity was high at the time of race entry, which was the earliest opportunity for gathering data, but the evidence suggests that preparation started much earlier.

Further research should utilise a research design that facilitates a greater understanding of the decision making of inactive participants who are *contemplating* participation in such an event, or how physically active women perceive MPSE events as a mechanism to increase their PA levels. Further research may wish to consider if an entry-level MPSE acts as a gateway to longer, more physically demanding events. A

longer period of follow-up is recommended for future research to determine if behaviours adopted by first-time participants are maintained, extended, become seasonal, or dropped altogether.

Conclusion

In the context of health promotion, MPSE are capable of attracting a small number of women who were “recently active” or “insufficiently active” prior to commencing preparation. In addition, the majority of these women are likely to sustain an increased level of PA three months after the event. For historically active people MPSE are useful because they provide an incentive to maintain high levels of physical activity. Put simply, in addition to getting inactive women “off the couch”, these events may have an important role in keeping active women off the couch.

Practical implications

- Entry-level mass participation sporting events have the potential to attract insufficiently active women and motivate them to reach high levels of PA.
- Women are more likely to maintain long-term physical activity if they find it enjoyable.
- MPSE also provide an incentive for sufficiently active participants to remain active.

Acknowledgements

The authors would like to thank Brand New Day and Triathlon New Zealand for their practical assistance with participant recruitment and event demographics. This project was financially supported by Sport and Recreation New Zealand.

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Study Two: Post-Event Behavioural Intentions of Participants in a Women-Only Mass Participation Sporting Event

Running head: Post-event behavioural intentions

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Keywords: mass participation sporting event, triathlon, psychological connection model, behavioural intentions

Abstract

Little is known about the long-term physical activity (PA) behaviours of women after participating in a novice mass participation sporting event (MPSE). Three months post-event, 95 women reported their intention to participate in 1) the same event the following year; 2) other triathlons and/or fitness events. The results indicated that over 70% intended to return to this event while over 90% intended to participate in future MPSE. The Psychological Connection Model (PCM) was utilised to explain behavioural intentions. The results suggest a strong association between PCM and behavioural intentions. Most women with low intentions to return to the event were in the Awareness stage (low event commitment) and most women with high intentions to return were in the Attachment stage (high event commitment). These results show that in addition to providing short-term inducement for increased PA, novice MPSEs have the potential to act as “gateway” events for other MPSE.

Introduction

The long-term benefits that sufficient physical activity (PA) confers upon human health are well established. Physically active individuals can reduce their risk of developing several chronic diseases such as Type 2 diabetes, stroke or coronary artery disease by up to 50% and reduce their overall risk of premature death by up to 30%. The economic benefits of a physically active population are also significant: The Australian health system can save an estimated \$3.6 million per annum for every 1% increase in the proportion of Australians who are sufficiently physically active (Department of Sport and Recreation, 2007).

In New Zealand, along with many other countries, sufficiently physically active is defined as more than 30 minutes physical activity per day on at least 5 days per week (Sullivan, Oakden, Young, Butcher, & Lawson, 2003). However, approximately 50% of New Zealanders do not reach these levels; a figure consistent with other countries (Marcus et al., 2000; Sullivan et al., 2003). Whilst a variety of interventions are capable of encouraging insufficiently active people to begin regular PA; most people do not sustain a sufficient level (Hansen et al., 2010; Leong, Molassiotis, & Marsh, 2004).

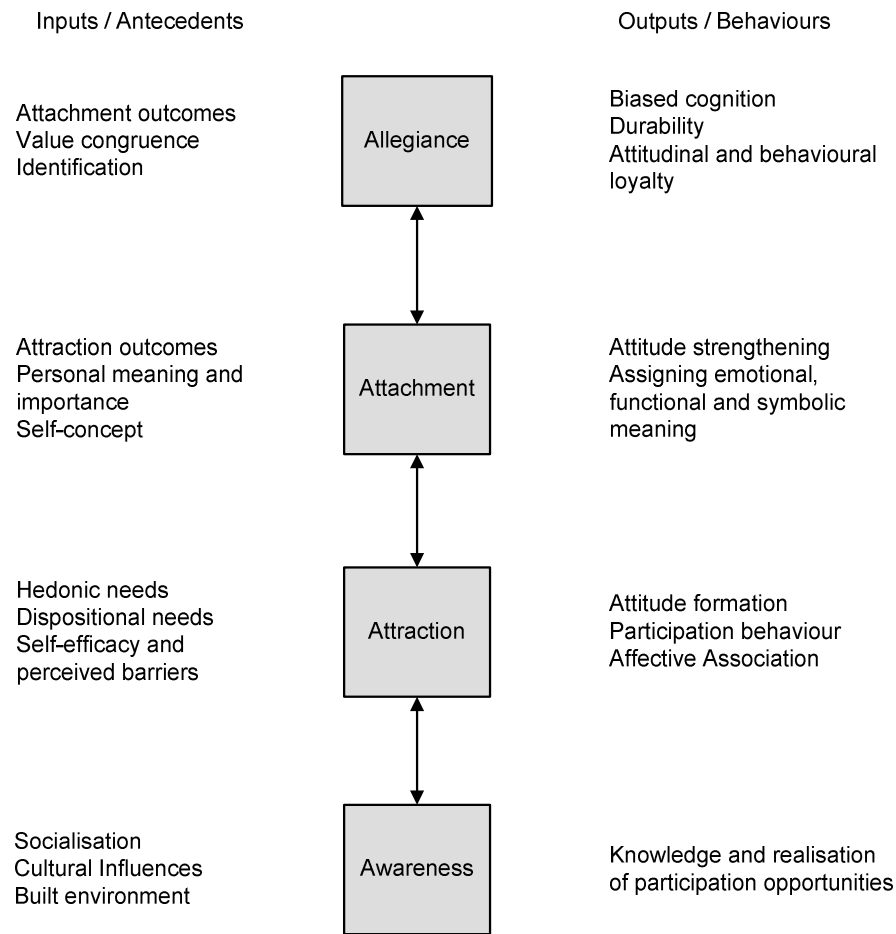
Despite a lack of supporting evidence, mass participation sporting events (MPSE) continue to position themselves as a mechanism to improve population health (Bauman, Murphy, & Lane, 2009). However, recent research on a women-only MPSE in Ireland has provided some evidence to this effect (Lane, Murphy, & Bauman, 2008). Their findings were: 1) The event attracted a small proportion of women with low levels of PA; 2) These women achieve sufficient levels of PA whilst training for the event and; 3) Whilst preparing for the event, almost all participants achieved levels of moderate

and vigorous activity that are well beyond minimum guidelines. However, apart from event director's "in-house" knowledge of return patronage, little is known about post-event PA behaviour of MPSE participants.

Ideally, studies of post-event behaviour would be both longitudinal and utilise actual activity. However, this is rarely practical with researchers often utilising behavioural intentions as a proxy for actual behaviours. Dishman's (2003) 20-study review indicates that 25% of actual exercise activity could be explained by people's intentions to exercise.

Understanding participants' behaviours around PA is important when planning interventions to increase population PA. The psychological connection model (PCM) proposes that the level of sport activity mental or psychological involvement determines the individual's intentions to engage in a specific behaviour. Two processes govern these psychological connections. First, as the mental association with the focal activity becomes more complex, the more likely the individual is to incorporate that activity into different aspects of their lifestyle. For example, an individual becoming more psychologically connected with running may purchase running-related magazines, clothing or food/drink. Second, as these mental associations become stronger, the individual may exhibit focal activity behaviours more often by increasing the frequency or duration of their runs. By understanding the degree of relationship an individual has towards their activity, associated behaviours can also be better understood (Beaton, Funk, & Alexandris, 2009; Funk & James, 2001, 2006). The four stages of behaviour expression within PCM are awareness, attraction, attachment, and allegiance (see Figure 8).

Figure 8. The psychological connection model.



Source: (adapted from Beaton et al., 2009)

Each stage is associated with different levels of behaviour and/or expression towards the focal activity. These range from an awareness that the focal sport/activity exists, through to the sport/activity being central to the individual's life. Assigning an individual to a PCM stage is achieved by measuring the individual's involvement in each of three facets. These facets are termed pleasure (i.e. the enjoyment derived from the activity,) centrality (i.e. how central the activity is to the individual's lifestyle,) and sign (i.e. the level of symbolism of the activity). An algorithm converts the three facet scores into a PCM stage. PCM possesses no temporal or directional rigidity meaning

that individuals can move through the stages in either direction in their own time frame (Beaton et al., 2009; Funk & James, 2001).

PCM was developed to provide a better understanding of sports-fan behaviours (Funk & James, 2001; Funk & James, 2004). However, its explanatory potential for active leisure activities is recognised. Beaton and Funk (2008) concluded that PCM is likely to explain PA behaviour change, more effectively than five other established behavioural models: Theory of Planned Behaviour (TPB), Health Belief Model, Schema Theory, Sport Commitment Model and the TransTheoretical Model (TTM). This conclusion came with the important caveat that PCM had not yet been empirically tested in the PA/active leisure context. In 2009, PCM's staging validity was tested within the active leisure domain using Australian competitive team-sports players (rugby league) and recreational skiers in Greece. This study was able to demonstrate that PCM remained valid across cultures, but more importantly that the staging process remained valid for the PCM framework. However, the link between the PCM stages and behaviour or behavioural intent was not investigated. Collectively, these two studies, along with PCM's background in understanding passive event participation behaviours, suggest that PCM deserves further investigation towards understanding active event participation behaviours.

With novice events it is proposed that whilst event "non-returnees" may have withdrawn from exercise/sport participation altogether, others are non-returnees to the event because they have pursued other, more challenging events. Previous research established that "challenge" was a key motivator of triathlon participants (Croft, Gray, & Duncan, 1999). It is therefore feasible that after completing a novice triathlon, many

participants may pursue more challenging events. If participants have a strong connection to the focal sport, but a “low” intention to return to the novice event, this may indicate a desire to find a new challenge, rather than any sort of discontent with PA or the event itself.

A review of the literature has identified that little is known about the long-term behaviours of MPSE participants following their event and whether PCM can explain the PA/active leisure behaviours. The objectives of this research are to: 1) determine the intentions of MPSE participants towards future MPSE participation; 2) determine if the intentions of MPSE participants towards future MPSE participation are associated with the participants’ physical activity, motivational or demographic characteristics, and; 3) determine if the intentions of MPSE participants towards future MPSE participation are associated with their psychological connection to the sport.

Methods

Participants in the ten-event 2009 MoreFM Triwoman series were invited to participate in this study. The series is clearly marketed to non-elite athletes as the race distances (i.e. 300m swim, 10km cycle, and 3km run/walk) are at the short end of the triathlon continuum and the event offers no merit awards or prize money. Promotional material for the event emphasise fun, social interaction and the benefits of exercise.

Upon race entry, participants were invited by the race director to participate in three online surveys. The race director’s email linked the race participants to survey one. Survey two was completed the week following their first event, as some women were expected to participate in multiple events throughout the series. Survey three was administered three months after the event. Participants declared informed consent when

they commenced each survey. The AUT University Ethics Committee (AUTEC) provided ethical approval.

The questionnaires were designed so that survey one provided the demographic, physical activity and motivational profile of participants. Data describing age, household status, employment status, and highest educational qualification were collected. In this section of the survey, the question prompts emphasised “At the time you began preparation for the event...” (i.e. T0). Physical activity at the time *event preparation commenced* was retrospectively self-assessed as being “vigorously active for at least the last six months;” “moderately active for at least the last six months;” “vigorously active for less than six months;” “moderately active for less than six months” or “not yet sufficiently active.” Consistent with New Zealand-based recommendations, “sufficiently active” was defined as at least 30 minutes per day on five or more days per week (Sullivan et al., 2003). The women’s motivations towards physical activity at the time *event preparation commenced* were assessed using an abbreviated form of the Exercise Motivations Inventory (EMI-2) survey (Markland & Ingledew, 1997). At 52 items across 14 subscales, the full EMI-2 was deemed too long given the other scales present in the survey. A panel with expertise in physical activity motivations developed an abbreviated version of the EMI-2. The abbreviated version excluded the Nimbleness, Revitalisation, and Health Pressures subscales and combined Ill-health Avoidance and Positive Health subscales into a single construct called Health. The abbreviated EMI-2 consisted of 11 subscales and 23 items: 1) Challenge (To give me goals to work towards, To give me personal challenges to face); 2) Competition, (Because I enjoy competing, Because I enjoy physical competition); 3) Enjoyment,

(Because I enjoy the feeling of exerting myself, For enjoyment of the experience of exercising, Because I feel at my best when exercising); 4) Positive Health, (Because I want to maintain good health, To feel more healthy); 5) Ill Health Avoidance, (To avoid ill-health, To prevent health problems); 6) Stress Management, (Because it helps to reduce tension, To help manage stress); 7) Strength and Endurance, (To build up my strength); 8) Weight Management, (To help control my weight, Because exercise helps me to burn calories); 9) Appearance, (To improve my appearance, To look more attractive); 10) Social Recognition, (To show my worth to others, To gain recognition for my accomplishments); 11) Affiliation, (To spend time with friends, To enjoy the social aspects of exercising, To make new friends).

Furthermore, data on PCM's three constructs— pleasure, centrality and sign - were measured as follows: 1) Pleasure (Taking part in a triathlon activity helped me relax when pressures built up, I really enjoyed taking part in a triathlon activity, Compared to other activities, triathlons were very interesting); 2) Centrality (A lot of my life was organised around triathlons, Triathlons had a central role in my life, A lot of my time was organised around taking part in a triathlon activity); and 3) Sign (When I took part in a triathlon activity, I could really be myself, Taking part in a triathlon activity gave others a glimpse of the type of person I am, I think you could tell a lot about a person by seeing them participate in triathlons). Each construct within the EMI-2 and PCM sections were measured on seven-point Likert scales.

In addition to this “preparation commencement” data, survey one also collected “race entry” data (i.e. T1). All questions were repeated with the question prompt now emphasising “At the current time...” The one exception to this was the retrospective

self-assessment of physical activity, which was replaced by the well-validated New Zealand Physical Activity Questionnaire-Short Form (NZPAQ-SF) (Mackay, Schofield, & Schluter, 2007; Sullivan et al., 2003). Time spent in PA is the primary outcome variable for the NZPAQ-SF. Participants were classified, in accordance with New Zealand recommendations, as sufficiently active (i.e. > 30 minutes of PA on five or more days per week), insufficiently active (i.e. >30 minutes of PA per week but less than sufficiently active threshold), or sedentary (less than 30 minutes of physical activity over the week). The NZPAQ-SF was not suitable for use in the T0 section of the survey because participants could not be expected to recall their minutes of PA with any level of accuracy.

Survey two, administered immediately after the first event (i.e. T2) repeated the same questions as T1 with the question prompts emphasising “At the current time...” However, PA questions, such as the NZPAQ-SF, were excluded, as it was believed that the effect of the event itself would confound the data. Survey two also collected data on event satisfaction and behavioural intentions. Satisfaction was measured on a seven-point Likert scale using an adaptation of the SERVQUAL measures: 1) I am satisfied with my decision to participate in the Triwoman event; 2) I did the right thing by deciding to participate in the Triwoman event; and 3) I will say positive things about the Triwoman event (Zeithaml, Berry, & Parasuraman, 1996). Data were collected on behavioural intention towards attending next year’s Triwoman event using an adaptation of behavioural intentions towards consumer service (Zeithaml et al., 1996). Scores were recorded on a seven-point Likert scale for the following questions: I intend to 1) Attend next year’s Triwoman event; 2) Participate in next year’s event even if the entry fee was

increased and 3) Encourage others to participate in next year's Triwoman event.

Behavioural intentions towards future triathlon or fitness events were each measured with the single question of "How likely are you to undertake the following: 1) Do more triathlon events; or 2) Do more fitness events."

Survey three, administered three months after the first event (i.e. T3), used the questions from survey two (i.e. PCM, satisfaction, EMI-2) with the addition of both the PA self-assessment question and the NZPAQ-SF from survey one. Survey three question prompts also emphasised "At the current time..."

Analysis

Participants were dichotomised into "High" and "Low" groups for behavioural intentions towards participating in: 1) next year's Triwoman series; 2) future Triathlon events; and 3) future Fitness events (e.g. running or cycling). "High" behavioural intentions for participating in next year's Triwoman event was defined as a mean of greater than 5.0 for the construct. Similarly, participants with a score of 5.0 or greater for the single question items for participating in either future triathlon or fitness events were also classified as "High". "High" for the satisfaction construct was defined as a mean of greater than 5.0. Due to the overall high event satisfaction and high intention to return to next year's Triwoman event, a higher than normal cut-off of 5.0 was used for these items. For this reason, the term "Low" should be considered to be relative.

PCM stages were calculated used the "Staging Score Procedure" where each of the three scores from each facet is averaged, giving a facet score. This facet score is then rated "Low" if ≤ 4.5 , "Medium" if $4.5 < 5.75$ and "High" if ≥ 5.75 . The algorithm, used to derive the final PCM stage is as follows: If all three facets = Low, then stage is

Awareness, if not then; 2) If Pleasure rank = Low, then stage is Attachment, if not then; 3) If both Centrality and Sign = Low, then Attraction, if not then; 4) If any two facets = High, then Allegiance, if not then; 5) All else = Attachment (Beaton et al., 2009; Funk, 2008).

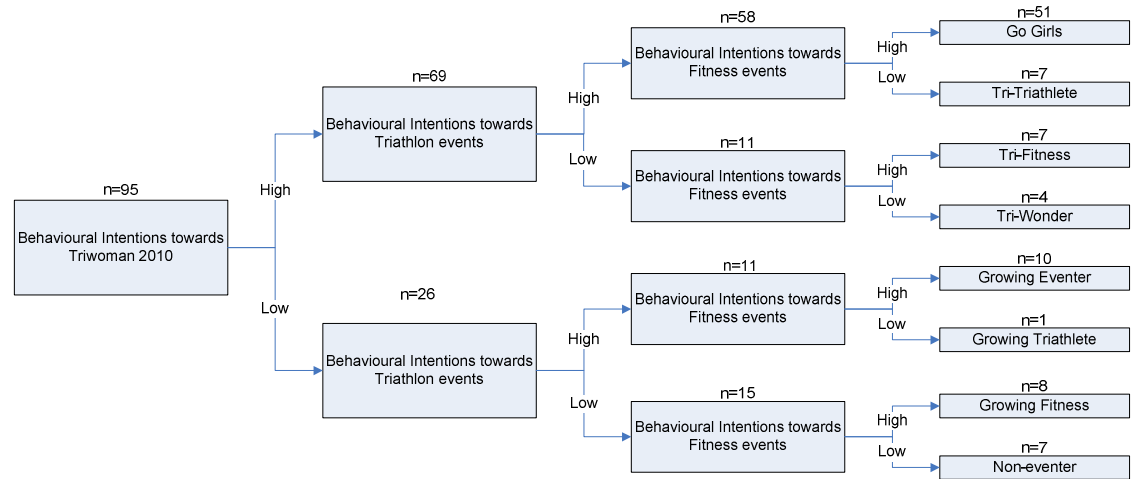
Motivation was reported by the mean for each EMI-2 construct, while analysis of NZPAQ was consistent with IPAQ guidelines (IPAQ, 2005). The results are reported in minutes to allow consistency for comparing to the New Zealand recommendations of “30 minutes a day on 5 or more days of the week” (Sullivan et al., 2003). Recognising the benefits conferred by more intense physical activity, the minutes of vigorous activity were weighted by a factor of two (Armstrong, Bauman, & Davies, 2000).

Results were analysed for the high and low groups for the three different behavioural intentions as described above. Intra-group mean scores differences were measured with t-tests and inter-group mean score differences were measured using analysis of variance with Tukey’s post hoc tests. Effect size was calculated using Cohen’s d while Chi-squared tests measured the differences between the final eight behavioural intention groups and demographic data and motivational or PCM constructs.

Results

A total of 95 women completed the survey. Their intentions towards further participation in any form of MPSE, by frequency, are shown in Figure 9.

Figure 9. Taxonomy of behavioural intentions towards future MPSE participation.



This taxonomy shows firstly the distribution of participants according to their intention to participate in next years Triwoman. The second set of distribution follows on with their intention to participate in further triathlon events and the final division shows their intention to participate in further fitness events. From Figure 9, it is clear that the majority of participants (93%) intended to continue participating in some form of MPSE. Most of these women (n=51) intended to continue with the Triwoman event and to also participate in additional MPSE (i.e. both triathlon and other fitness events). Four women intended to continue with the Triwoman event only. Of those with low intentions to return to next year's Triwoman, eight women intended to continue with fitness events. This suggests that while they enjoy participating in MPSE, triathlons are not their preferred activity. A further ten women intended to continue with both other triathlons and other fitness events, while one woman intended to participate only with further triathlons. This suggests that these women enjoy participating in triathlons, but the Triwoman event no longer meets their needs. Only seven women had no intention

of not participating in further MPSE. The reasons for not continuing with the Triwoman event were not explored in this study.

The participants' behavioural intentions to participate in any type of MPSE were not influenced by their demographic profile, (i.e. age, household composition, highest educational qualification, or employment status,) previous participant status, or physical activity status. This was demonstrated by there being no significant statistical differences between those competitors with high or low behavioural intentions to participate in next year's Triwoman event, future triathlon or fitness events.

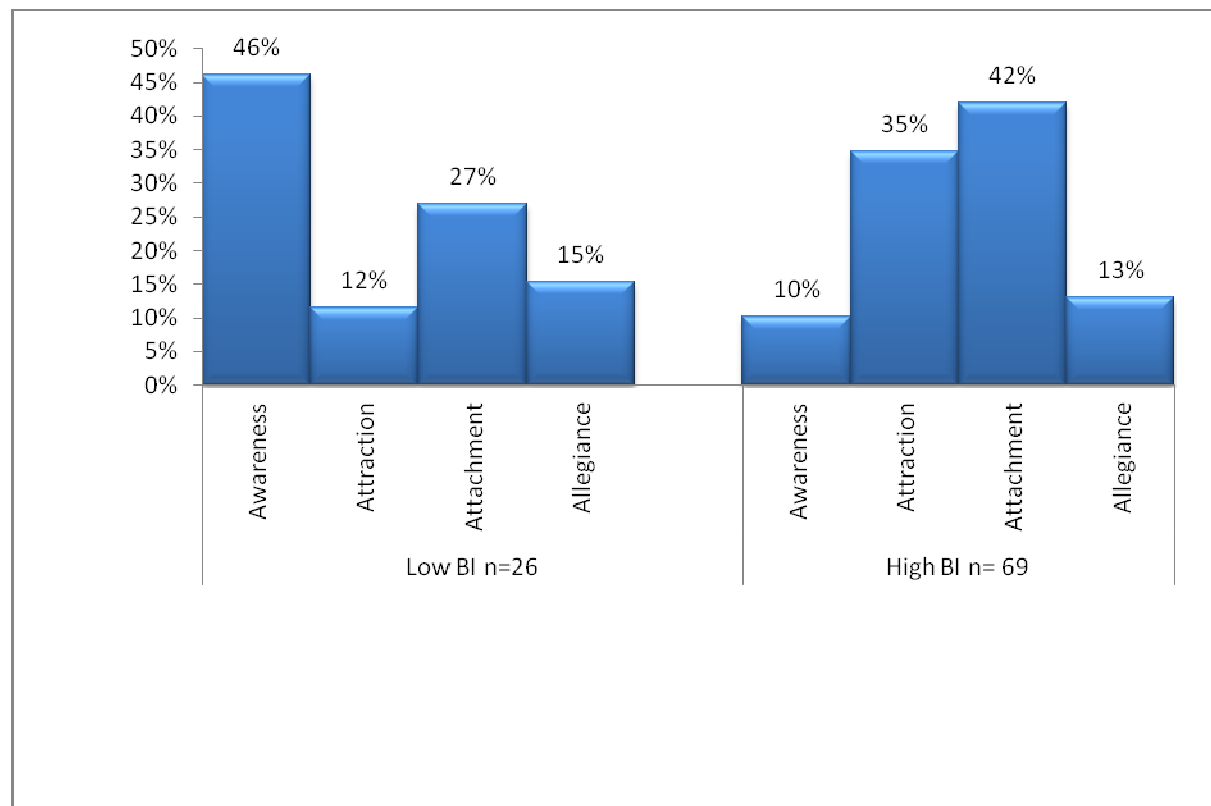
The motivations of competitors with high or low behavioural intentions to participate in next year's Triwoman event differed significantly ($p < 0.05$). Competitors with high behavioural intentions to participate in next year's Triwoman were associated with higher levels of enjoyment, competition, challenge, and stress reduction. However, these all possessed a low to moderate effect size (Cohen's $d < 0.69$).

The results indicate that overall, the participants were very satisfied with the Triwoman event ($\text{mean}_{\text{highBI}} = 6.69$ [$SD = 0.59$] v's $\text{mean}_{\text{lowBI}} = 5.50$ [$SD = 1.07$]). Nearly 30% of the study participants recorded the maximum of 7 for both event satisfaction and intention to return to next year's event. This high level of satisfaction was associated with a high intention of repeating next year's Triwoman event ($p < 0.001$ Cohen's $d = 1.30$). Event satisfaction was the key variable that differentiated between participants with a high or low intention to return to next year's Triwoman event. Event satisfaction for the Triwoman event also had a significant association with high behavioural intentions to do further triathlon events ($p < 0.001$ Cohen's $d = 0.91$).

There was no apparent association between event satisfaction and positive intentions towards future fitness events.

Psychological connection to triathlons, as measured by PCM, was associated with the participants' intention to return to next year's Triwoman event (See Figure 10).

Figure 10. PCM stages by behavioural intentions to participate in next year's Triwoman event.

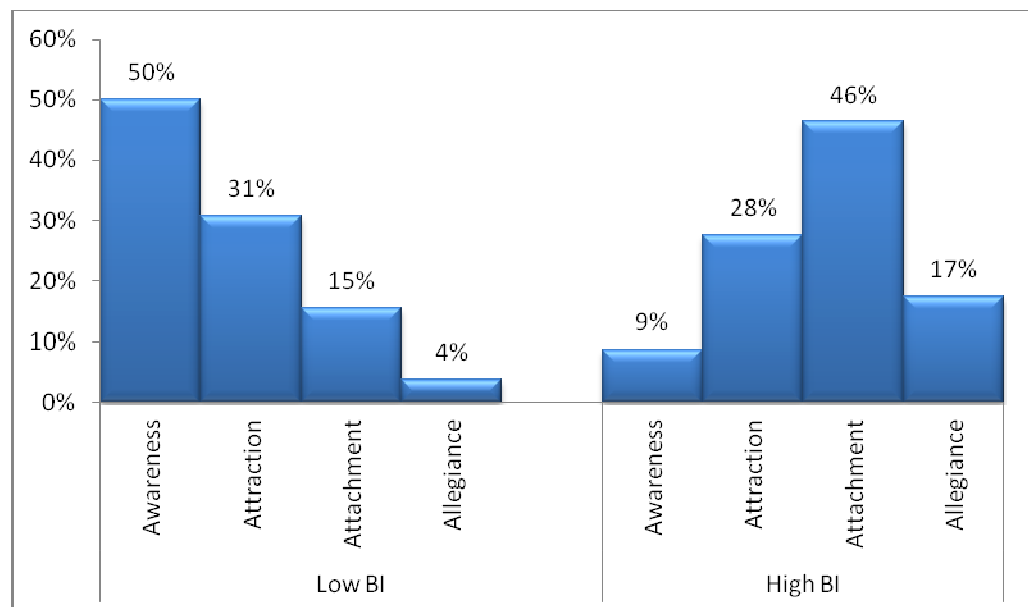


Nearly half of the women (46%) with low intentions to return to the event were in the awareness stage compared to only 10% of those with high intentions to return. Conversely, 42% of the women with high intentions to return to the event were in the attachment stage compared to only 27% of those with low intentions.

Participants who are “attracted” to triathlons (35%) also held a high intention to return to next year’s event. This is thought to be associated with participants being satisfied with the event but having insufficient time to develop a strong connection towards the sport of triathlon. Only 27% of “attached” participants possessed low behavioural intentions to return to the Triwoman event. It is this group that appear interested in longer, more physically demanding events.

The allegiance stage was not useful in this study as the Triwoman event attracts predominantly novice participants. Few participants were expected to be in the allegiance stage as it is thought that many of the allegiant triathletes prefer a more challenging event. Put simply, triathlon participants who are allegiant are not likely to participate in entry-level events. A more linear association between the psychological connection towards triathlons and behavioural intentions towards further triathlon events is evident in Figure 11.

Figure 11: Psychological connection towards triathlons and intentions toward further triathlon participation.



Both Figure 10 and Figure 11 illustrate low levels of allegiance with high behavioural intentions towards further triathlon events. This is consistent with the novice format of the Triwoman event.

Discussion

Behavioural intentions

Participants were subdivided on the basis of their behavioural intentions towards next year's Triwoman event, other triathlons or other fitness events. This permitted segmentation according to their intentions towards future MPSE. The results showed that nearly 75% of the participants intended to return to next year's Triwoman event; while over 90% intended to continue with some form of MPSE. This suggests that even if a participant decides to not return to a novice MPSE, they are likely to participate in other MPSE. These other MPSE are likely to be more physically demanding. Behavioural intentions to return the same event are a poor indication of long term PA and of the possible health benefits of a novice MPSE.

Demographic data or PA levels did not influence these findings. Motivations had some influence, but the overall effect size was small. Satisfaction was a significant determinant towards participants' intentions to return to the Triwoman event, but overall, participants were highly satisfied with the event. While it can be argued that satisfaction with the event experience is not a good discriminator, our results reiterate the well-established link between satisfaction and positive behavioural intentions (Marcussen, 2008; Zeithaml et al., 1996).

The idea that women with low intention to return to any MPSE would also show low levels of PA was not supported by the data. Of the seven women who had low intentions to return to any event, four of the women were sufficiently active for at least six months prior to starting preparation for the event and remained sufficiently active three months after their first event. The other three women were all insufficiently active within six months of preparing for the event. Two of these women became sufficiently active and remained so three months after their first event. This suggests that although some women may decide not to continue with MPSE, they do not discontinue PA. Of further interest, six of these women had participated in the Triwoman series in a previous year. These results suggest that a low behavioural intention to participate in future MPSE is a less-than-perfect indicator of long term PA and of the possible health benefits of a novice MPSE.

The lack of difference in PA as indicated by the NZPAQ was interesting. It was originally anticipated that the “Tri-Wonders” (i.e. high intentions to return only to the Triwoman event) and the “Non-eventers” (i.e. low intentions towards any further event participation) would also have low levels of PA three months after their first event. Although the “Tri-Wonders” did have the lowest mean minutes of activity out of the eight groups (mean = 123 minutes), their mean of 168 weighted minutes suggests that many in the group were sufficiently physically active. Similarly, the “Non-eventers” recorded an average of 185 minutes, suggesting that, although they were less likely to participate in further MPSE, the risk of them being insufficiently active or sedentary was similar to the other groups.

Furthermore, all groups except the “Tri-Fitness” (i.e. high intentions to return to next year’s Triwoman event or to participate in further fitness events) did not record a mean of being active over 5 or more days during the week. The reasons for this are unclear. Survey three was conducted in autumn after the end of Daylight Saving; perhaps earlier nightfall, cooler temperatures and/or more inclement weather were less conducive for PA (Salmon, Owen, Crawford, Bauman, & Sallis, 2003).

Despite decreased PA levels in all groups three months after their first event, the fact that most participants intended to participate in future MPSE is encouraging. Previous research has shown that 50% of individuals commencing a PA programme drop out after the first six months (Dishman & Buckworth, 1996). If the women with low PA levels at this time point intend to have summer “bursts” of PA, there will be some health benefits. However, one suggestion for further research is to identify these women and identify how to encourage higher levels of PA throughout the entire year. For example, a winter event or summer preparation series could be considered.

Psychological connection

There are few studies on PCM in the active leisure domain. In this study PCM measured the psychological connection of the individual towards the sport of triathlon rather than the Triwoman event. To this end it was able to indicate likelihood of further triathlon participation; as evidenced by the negative association between “Low” intentions to participate in further triathlon events and level of psychological connection. Although the opposite relationship was not noted in those women with High intentions, the low numbers of women recorded in the allegiance stage is believed to be due to the nature of the event: Athletes in PCM’s allegiance category are likely to seek more

challenging events. It can be argued that this study should not utilise an awareness stage as all of our study participants took part in the event. According to Beaton and Funk (2009) this means that they would be, at minimum, in the attraction stage. However, this study is a snapshot of each participant's psychological connection to triathlons three months after their event. For those with a low behavioural intention to continue with the event, regression from the attraction stage is possible.

A further issue around this is the complex nature of triathlon as it involves three different sporting disciplines: Therefore three unique sport connections are being simultaneously assessed in this study. Hence, an individual may be in the allegiance stage for cycling but only in attraction for swimming while only enduring running. Future research would need to decouple the three sport activities to understand MPSE implications for getting people active by specific discipline. Further utilisation of PCM in an event that attracts a range of athletes (i.e. novice, experienced, recreational and competitive) will likely illuminate PCM's full value. Similarly, a study that investigates psychological connection to the sport/event over a longer period of time will also add value.

PCM was a practical instrument to use. The simplicity of the instrument reduces the amount of time required to develop the survey compared to TPB-based techniques (Fila & Smith, 2006). PCM's brevity should also encourage response rate as lengthier instruments may have a negative effect on survey response rates (Jepson, Asch, Hershey, & Ubel, 2005). PCM is an easy instrument to analyse. The algorithm can be converted into either an Excel or SPSS calculation when large numbers of subjects have been studied, while a table is available for smaller numbers (Beaton et al., 2009). For

both academics and practitioners, PCM may provide a useful conceptual and diagnostic tool to further examine participation segments at events. For example, traditional segmentation procedures that use demographics, motives, service quality, and behavioural intention to examine participants can be augmented by examining the level of meaning individuals assign to the activity within these segments. Hence, traditional segments can be further explored based on the level of sport involvement to better understand decision-making. This would apply to the taxonomy of behavioural intentions.

Limitations and suggestions for further research

There were a number of limitations to this study. The survey appears to have oversampled returning participants. Eighty-three percent of our sample were returning participants, significantly higher than the 40-50% estimated by the race director (S. Hooks, personal communication, January 31, 2009). However, it correlates with a previous study that suggested that active women are more likely to respond to PA survey requests (Lane et al., 2008). This may bias the results towards increasing behavioural intentions to return to MPSE. Lane and colleagues (2008) managed this risk by interviewing a random sample of participants at another women-only MPSE to ensure that their sample was representative of the race population. Another approach would be to purposefully recruit a sample of insufficiently active women prior to event entry.

The event used in this survey was aimed at the novice woman. An enduring psychological connection is assumed to develop with time. This suggests that the distribution of women across the PCM stages may be biased towards those in the lower

stages and this may not generalise towards other populations. However, as this is one of the first instances of PCM being used in this manner, these results now provide a baseline for further research.

There are many avenues for further research. Replicating this study in other MPSE contexts (e.g. running and cycling events), including those with male participants, will improve the external validity of our conclusions. As suggested earlier, repeating aspects of this research with a MPSE that caters for novice to elite athletes would elicit further insight towards the applicability of PCM in active leisure participation. Continuing the research until the next season of events would determine if intention equates to actual behaviour. As over 80% of this study's participants indicated a high intention to branch into other MPSE, another avenue for research would be to investigate novice triathlons as a gateway to other MPSE events. Triathlons comprise of three different sporting disciplines – swimming, cycling and running. After participating in a triathlon, an individual may decide to specialise in any one of these disciplines, remain with triathlons, commence duathlons or even branch into multisport events or adventure racing. The development of PCM as a viable framework should be given serious consideration. This research demonstrated that the model is easy to use and effective in predicting behavioural intentions.

Conclusions

Previous research has shown that participants in a novice MPSE can achieve high levels of PA but little was known about their post-event behaviours. Post-event physical activity levels can vary but participants who choose not to continue with a MPSE should not be assumed to have returned to an inactive lifestyle. Further research

should focus on developing PCM as it appears to be a simple and effective theoretical framework with which to understand and explain physical activity behaviours. Lastly, this research has shown that novice MPSE can act as “gateway” events to other MPSE as participants who choose not to return to a particular event are highly likely to participate in other MPSE. Thus, what appears to be the event’s finish line may actually be the next event’s start line.

Acknowledgements

The authors would like to thank Brand New Day and Triathlon New Zealand for their practical assistance with participant recruitment and event demographics. This project was financially supported by Sport and Recreation New Zealand.

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Discussion

In this chapter, a brief summary of the research purposes, methods and results is presented. This is followed by a discussion of how the results meet the research objectives and their implications for public health in New Zealand.

Research summary

Using two studies, this thesis investigated participants in the 2009 Triwoman series, a women-only triathlon series in New Zealand. Study one aimed to establish a demographic and motivational profile of the attendees. In addition, the research sought to identify the proportion of participants who were insufficiently active prior to their engagement with the event. Also measured was the extent to which their level of physical activity changed from when they commenced training for the event and three months after the event. Study two explored the relationship between event satisfaction and whether participants transitioned into sufficient and sustainable levels of PA. Study two also investigated behavioural intentions of participants towards further MPSE and whether this was associated with demographic variables, type of motivation, or their psychological connection towards triathlon. Finally study two explored the use of PCM and its viability for use as a behaviour change model.

Data were collected for both studies using a three-phase, longitudinal study that covered four time-points. Participants were invited to enter the online study after an email from the race director following race entry. Phase one of data collection occurred at time of race entry and asked questions about the present time (T1) and retrospectively for when event preparation commenced (T0). Phase two occurred immediately after the

participant's first race (T2). Phase three collected data three months after their first event (T3).

Table 5 provides an overall summary of data collected during each phase. Demographic data was collected once at the end of phase one. Data regarding motivations towards PA and psychological connection towards the sport of triathlon were collected for each time point by use of an abbreviated version of EMI-2 and PCM. A retrospective assessment of PA was collected for T0. This same statement was repeated at T3 (for the current time) to get a subjective assessment of PA changes. Objective assessment of PA was collected with the NZPAQ-SF at T1 and T3. Finally, T2 and T3 collected data on event satisfaction and behavioural intentions towards future participation in: 1) "next year's" Triwoman event; 2) further triathlons and; 3) further "fitness" events (e.g. running or cycling). No data from T2 features in the studies described within this thesis.

Considered collectively, the results from these two studies show that women who participated in the Triwoman series were generally well-educated, middle-aged mothers who live with their partners, and are in full-time employment. More than 80% have taken part in the event in previous years, while 70% were sufficiently active for more than six months by the time they commenced preparation for the event. Very few women were sedentary prior to event preparation. However, all of the women were motivated by challenge and competition regardless of their PA level at T0. Women who had been sufficiently active for more than six months were significantly more likely to be motivated by enjoyment.

Table 5: Overall Summary of Data Collection

Data	Phase one		Phase two	Phase three
	Preparation commencement (T0)	Race entry (T1)	Immediately after event one (T2)	Three months after event one (T3)
Demographic data		x		
Motivations (EMI-2)	x	x	x	x
Psychological connection (PCM)	x	x	x	x
Physical activity (statement)	x			x
Physical activity (NZPAQ-SF)		x		x
Event satisfaction			x	x
Behavioural intentions towards further MPSE			x	x

At T1, the women achieved a mean of 709 minutes of PA (SD = 604) over the previous seven days, as measured by the NZPAQ-SF. This figure, though, was dominated by those who had been sufficiently active for more than six months. The target group – those recently sufficiently active or insufficiently active at T0 – achieved a mean of 562 minutes (SD = 518) over those seven days. This is significantly greater than the 150 minutes per week currently recommended for good health. At T3, activity minutes decreased overall to a mean of 186 minutes (SD = 156) with the target group achieving a mean of 121 minutes (SD = 60). It should also be noted that, at T3, of the 13 women who were insufficiently active at T0, eight of them (62%) had transitioned to being sufficiently active for more than six months.

Behavioural intentions towards participating in next year's Triwoman event series, future triathlons and future fitness events showed that 93% of the participants strongly intended to participate in one or more of these types of events in the future. Furthermore, 54% strongly intended further participation in all three types of event. Of demographic, motivational or event satisfaction data, only event satisfaction was significantly associated with strong intention to return to the Triwoman event.

Psychological connection to the sport of triathlon was very strongly associated with intention towards both future triathlon and Triwoman participation.

Implications

These results show that MPSE have the potential to attract those people insufficiently or recently active and can also assist them to transition to being sufficiently active on a long-term, sustainable basis. However, this thesis involved participants who had already entered the Triwoman series. For MPSE to provide greater benefits to the wider community, more insufficiently active people need to become aware of, and be attracted to enter, MPSE. Concurrently, there needs to be sufficient encouragement to sustain behaviour changes, both before and after the event, to keep these people attracted to the sport and/or event. Increased collaboration between health agencies, sporting bodies and race directors would benefit this process.

Awareness

The first step in this process is to ensure insufficiently active people are aware of the opportunities and benefits from participating in a MPSE. Race directors generally advertise widely, however, some people may benefit from more specific targeting. District Health Boards (DHB's) and other health agencies should consider MPSE a

viable addition to public health schemes. For example, MPSE may be a cost-effective addition to New Zealand's Green Prescription scheme. Green Prescriptions are a health professional's written advice to a patient to be more physically active. This written advice is also sent to a support service that will provide verbal support and/or practical advice to the patient for the following three to four months. A fee may be involved if the patient chooses to take part in practical sessions run by third party organisations (Harbour Sport, n.d.; Ministry of Health, 2010). Frequently, this fee is discounted for Green Prescription members. This system is considered to be cost effective and can produce a 10% incremental increase in PA levels (Lawton et al., 2008).

This research showed that the participants responded to different PA motivations, such as affiliation or health. Therefore, it is plausible that training for a MPSE would be of greater appeal to those who respond to the motivations of challenge and competition; people who may not otherwise thrive in a gym-type environment.

Training for a MPSE may also aid treatment and/or recovery from a number of health conditions, including NCDs, but also following injuries or certain types of surgery. Training for a MPSE should also benefit patients with certain mental health conditions. Occupational therapy or physiotherapy rehabilitation programmes could also incorporate MPSE and their related training.

Workplaces also benefit from employees who undertake sufficient PA. These employees are associated with increased workplace motivation and creativity and also decreased absenteeism. The company attains a better overall image (Gettman, 1996). This suggests that more workplaces should take advantage of the benefits of increased

PA that can result from MPSE by actively promoting and organising training and/or coaching opportunities to assist corporate teams for MPSE.

All of these initiatives can increase awareness amongst the inactive population of the opportunities and potential benefits of MPSE.

Attraction

Once the insufficiently active person has become aware of the opportunities that may result from MPSE participation, event selection becomes crucial. This thesis determined that high levels of event satisfaction were associated with high levels of intention to return to the event. Once aware of a MPSE, if the person perceives the event to be “fun”, and within their capabilities (after training), this can, according to PCM, attract the person and encourage event entry (Beaton & Funk, 2008). Therefore, further research should investigate the aspects of novice events that increase participant self-efficacy. These aspects should then be incorporated into future events. This research should not focus solely on the event, but also investigate lead-in activities that would increase training self-efficacy. Increasing self-efficacy has been positively associated with an increase in PA in a number of theoretical models, such as PCM, TPB, SET and HBM (Beaton & Funk, 2008; Sherwood & Jeffery, 2000). These aspects may include community training groups and/or online support groups.

Community training groups can be organised by the race-director as part of the lead into the MPSE. Each of the four main sources of self-efficacy could be enhanced by utilising a “Green Prescription Graduate” – a volunteer who previously participated in a non-elite MPSE – as a group leader. There are several reasons for suggesting this: Increasing self-efficacy by “verbal persuasion” is more likely to be successful when it

comes from a credible source (Morris & Summers, 2004). People entering the Green Prescription programme may relate better to a non-elite previous participant. Volunteers decrease the economic costs required for the programme. Previous participants would be able to share training tips and what to expect during the event itself (vicarious experience), and non-elites may be perceived as being less threatening and novices may find it easier to ask them potentially “embarrassing” questions.

An alternative route of support and means of increasing self-efficacy could be provided by an event-specific online social network. These would be able to provide peer-to-peer support for participants who, for whatever reason, are unable to get to a community training group but desire the support provided by the social group. It also would provide another environment for providing advice and information.

These training and online groups should be supported by sporting bodies and health agencies in order to maximise their potential. Sporting bodies could provide the technical support to the training groups, such as training schedules, coaching days and advice. Health agencies could maximise the health potential of these groups by providing information or workshops on topics including nutrition, or injury prevention/management. These sporting bodies may also be able to act as a conduit into club memberships.

Workplace interventions have also been shown to be effective for increasing PA and many workplaces do provide health incentives to staff members. (Dishman, DeJoy, Wilson, & Vandenberg, 2009). For example, in Auckland, many workplaces do organise corporate teams for events such as Round-the-Bays. However, training for the event is generally informal, and this is unlikely to result in sustained increases to PA

amongst the workplace. Research has shown that workplaces who set-up and use training groups, as recommended above, can achieve marked increases in PA compared to those who only distribute newsletters on healthy behaviours (Dishman et al., 2009).

Leveraging additional social, educational or entertainment opportunities at, or associated with, the event can also attract participants and/or spectators (Green, 2001). For example, a women-only event trying to increase the proportion of participating “mothers” may provide child-friendly activities and entertainment at the event centre.

The above interventions describe methods for novice MPSE to increase their overall numbers by increasing the proportion of participants who are insufficiently active prior to preparing for the event. While these interventions will assist transitions from insufficiently active to sufficiently active behaviours; the greatest improvements to population health will only be derived after *sustained* sufficiently active behaviours. This suggests that further interventions are required to ensure more people remain transitioned into sufficiently active behaviours.

Attachment

This thesis also showed that after the Triwoman series, the majority of participants intended further participation in MPSE for multiple sporting disciplines; including further triathlons. This suggests strengthening attitudes towards both triathlons and MPSE. Sporting bodies and race directors should take advantage of this strengthening attitude by collaborating to ensure that once a participant has finished an entry-level event, options for the next, more advanced, event are immediately available.

Some MPSE offer an “early-bird” discount to promote early entries. Offering a discount for an advanced event at the end of a novice event may prompt the next

challenge and encourage goal setting; thus maintaining or increasing PA. These advanced events should also advertise advanced training groups/support networks for the same reasons as previously described.

An alternative, or even complementary, training group could also include *community event series*. These are event series that host smaller numbers of participants than MPSE, but occur more frequently. They may offer a variety of race distances and are normally less formal than MPSE. In Auckland, such events include the year-round weekly running events “Rat Race” (<http://www.taahc.co.nz/ratrace.asp>), hosted by an athletic club; and “adiRun” hosted by the Newmarket adidas store in conjunction with the Auckland Marathon (<http://www.aucklandmarathon.co.nz/preparation/lead-up.asp>). Another similar event series that is summer only is the swim and run “Stroke and Stride” (<http://www.swimrun.org>). These events normally have a strong social aspect, such as post-event social drinks or spot prizes. They may also record and display race times. These can assist new participants to develop a stronger sense of competition, community and/or identity within the sport. These events often incur a nominal fee, but can also be provided free as they are an opportunity for merchandisers (e.g. adiRun).

Participants may incorporate these community event series into their training for a bigger event. For example, adiRun is billed as a lead-in event for the Auckland Marathon. However, from both a health and sporting body perspective, having more people involved with the weekly events is preferred. This thesis showed an increase in PA leading up to the event, which declined afterwards. The reasons for this decline were not investigated. Furthermore, for many, PA declined to a level deemed insufficient for maintaining good health. Participating in a community event series may

provide further motivation to maintain a healthy level of PA. For the sporting bodies, a high level of participation in a community event series can lead to an increase in sporting club membership – especially for the clubs that host the event. From either the health or the sporting body perspective, the more a person participates in the activity it is likely that a stronger psychological connection to the sport or event will develop (Funk & James, 2001).

Receiving a tangible item with personal meaning at the event may also strengthen positive attitudes towards the event (Neale & Funk, 2006). Many races provide finishers medals and/or t-shirts and have merchandising opportunities such as event photos. Having a tangible item from the event may invoke more frequent, pleasant, memories of the day, which may further strengthen positive associations to the MPSE and thus increase the return rate.

If offered earlier in the participant's preparation, merchandising opportunities could also assist with strengthening positive associations to the MPSE. Some potential strategies have already been alluded to, such as sponsoring training groups, coaching or nutrition workshops. Having merchandise available pre-event may lift the profile of both the sponsor and the event. First time participants may not have the appropriate clothing, other attire or equipment. Having easy access to recommended/sponsored items may improve training and/or decrease anxiety associated with event preparation. This strategy also has the potential to strengthen positive associations with the event and/or merchandiser.

In this research, there was a positive association between PCM stages and intention to return to the Triwoman event or to participate in further triathlons.

Participants becoming involved in community event series or being encouraged to enter further MPSE early along with appropriate merchandising, as discussed above, are all measures that should strengthen PCM's pleasure, centrality and sign involvement facets. This should, in turn, be associated with increasing attachment to the event or sport and thus encourage repeat event customers.

Allegiance

Participants making personal gains will have these virtues recognised by their friends, family and community. Trickle-down effects from the MPSE may involve: improved family nutrition; family, friends or community associates becoming involved in MPSE or associated PA; or the participant leading another community training group. Ideally, the participant enjoys their increased level of PA and prioritises it into their life. However, event or sport allegiance is assumed to develop with time, congruent values and ongoing identification with the event/sport. Therefore, from a marketing perspective, there is probably no intervention to encourage attached athletes to be allegiant. Instead, the longer an athlete remains in PCM's attached stage; their connection with the sport/event will become more durable. This will lead to allegiant athletes.

Limitations

There were a number of limitations to this research. It did appear to oversample returning entrants. Eighty-three percent of our sample were returning participants, significantly higher than the 40-50% estimated by the race director (S. Hooks, personal communication, January 31, 2009). Lane et al (2008) surveyed a random sample of participants on race day to ensure that their survey sample was homogenous with race

entrants. This was not practical to do with the Triwoman event as the series had 10 races around New Zealand with many participants intending to enter multiple events.

Ideally, the first point of contact with study participants would be at commencement of preparation; this was not possible with this research with T1 being the earliest opportunity for data collection. This restricted the ability to collect accurate and objective data (e.g. NZPAQ-SF) in a timely manner.

This study did not recruit as many participants as initially anticipated. This resulted in it being underpowered, especially with respect to determining differences in the behavioural intentions taxonomy. Mean minutes spent in physical activity were all associated with a large standard deviation, demonstrating that the data was spread out over a large range of values. This may be a further reflection of the small sample size.

Opportunities for Further Research

Along with the suggestions for future research already discussed above, these two studies can be extended into further research opportunities. The initial aim of this study was to understand if the Triwoman event encourages inactive women into becoming and remaining sufficiently active three months after their event. This series appears to be dominated by women who have been sufficiently active for more than six months. Future research that recruited inactive study participants *prior to race entry* would address this issue.

Further investigation of PCM should incorporate an event that attracts a wider range of abilities from the novice through to the elite. This would include an event such as the Auckland Marathon that has courses ranging from 5km to the full marathon. This should be combined with Lane and colleagues' (2008) process of sampling a random

population on race day, to determine if the study population was homogenous with the MPSE population.

By studying a triathlon, this research may have become unnecessarily complex. Using three sporting disciplines instead of one, such as a fun-run, made the survey longer and added complexity to the analysis. However, the event was, in part, chosen due to the rapport the event director held with his event population and his willingness to be a part of this study. Repeating the study using a novice event that uses a single sporting discipline may yield different results.

Although this research only studied women, this was due to the event selected rather than a deliberate attempt to study women's sport. Further research on events that cater for both genders would allow opportunities for generalisation and comparison of results. Ethnicity was not incorporated into this research for simplicity. However, further research should incorporate ethnicity as different ethnicities have different lifetime risks of developing some non-communicable diseases (e.g. Type 2 diabetes) (Ministry of Health, 2002). Different ethnicities may also have different rates of participation within MPSE and this should be explored to better target healthy behaviours.

A longer study period would enable an understanding of whether behavioural intentions translate into actual behaviours and whether behaviours adopted by first-time participants are maintained, extended, become seasonal, or dropped altogether. It would also be interesting to further explore the effects of weather and/or Daylight Saving on PA behaviours.

An extension of healthy behaviours facilitated by a MPSE could also include aspects like improved nutrition, or whether there are any follow-on healthy behaviour changes by other family members after changing the mother's behaviours. Previous research by Sport and Recreation New Zealand (SPARC) has shown that children are more likely to be active if their parents are active (Sport and Recreation New Zealand, 2007). Determining the long-term population health effects of MPSE should include these “trickle-down” effects.

Concluding Remarks

Collectively, these two studies permit a number of conclusions. The majority of women attending this novice MPSE were well-educated middle-aged mothers in full-time employment. At the commencement of event preparation, a reasonable proportion of these women (~30%) were currently, or recently, insufficiently active. Of the small proportion (12%) of inactive women, 46% remained sufficiently active three months after their first event. Thus novice MPSE have a role to play in promoting PA. Enjoyment of PA was the key differentiating motivation between those who were Long-term active and those Short-term/Insufficiently active at the commencement of event preparation. Post-event behavioural intentions suggest that the novice triathlon can also act as a “gateway” event as the majority of these women intend to participate in other types of MPSE. A further benefit of MPSE is the incentive they provide to historically active women to maintain high levels of PA. PCM warrants further use, as it appears to be a simple and effective theoretical framework with which to understand and explain physical activity behaviours. Lastly, it can be concluded that there are public health benefits to novice MPSE. Race directors, health agencies and sporting bodies should

collaborate to: 1) increase awareness of MPSE; and 2) design and promote events that attract the novice participant. These agencies should leverage off the event and provide ancillary training or health information, thus strengthening overall positive psychological associations with MPSE. These positive associations should translate into repeat MPSE participation. Thus, what starts as a novice MPSE turns into life-time PA participation and a win for population health.

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Appendix I: Ethics Approval

MEMORANDUM

Auckland University of Technology Ethics Committee (AUTEC)

To: Geoff Dickson
From: **Madeline Banda** Executive Secretary, AUTEC
Date: 7 November 2008
Subject: Ethics Application Number 08/211 **The ability of female-only triathlon events to facilitate sustained physical activity increases in adults who were previously insufficiently active or sedentary.**

Dear Geoff

Thank you for providing written evidence as requested. I am pleased to advise that it satisfies the points raised by a subcommittee of the Auckland University of Technology Ethics Committee (AUTEC) at their meeting on 23 September 2008 and that the Chair of AUTEC and I have approved your ethics application. This delegated approval is made in accordance with section 5.3.2.3 of AUTEC's *Applying for Ethics Approval: Guidelines and Procedures* and is subject to endorsement at AUTEC's meeting on 8 December 2008.

Your ethics application is approved for a period of three years until 7 November 2011.

I advise that as part of the ethics approval process, you are required to submit the following to AUTEC:

- A brief annual progress report using form EA2, which is available online through <http://www.aut.ac.nz/about/ethics>. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 7 November 2011;
- A brief report on the status of the project using form EA3, which is available online through <http://www.aut.ac.nz/about/ethics>. This report is to be submitted either when the approval expires on 7 November 2011 or on completion of the project, whichever comes sooner;

It is a condition of approval that AUTEC is notified of any adverse events or if the research does not commence. AUTEC approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are reminded that, as applicant, you are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

Please note that AUTEC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to make the arrangements necessary to obtain this.

When communicating with us about this application, we ask that you use the application number and study title to enable us to provide you with prompt service. Should you have any further enquiries regarding this matter, you are welcome to contact Charles Grinter, Ethics Coordinator, by email at charles.grinter@aut.ac.nz or by telephone on 921 9999 at extension 8860.

On behalf of the AUTEC and myself, I wish you success with your research and look forward to reading about it in your reports.

Yours sincerely



Madeline Banda
Executive Secretary
Auckland University of Technology Ethics Committee

Cc: Catherine Price czn0744@aut.ac.nz, AUTEC Faculty Representative, Applied Humanities

Appendix II: Participant Information Sheet

Triwoman Physical Activity Survey 2008/9



Information for participants - 01/11/08

Hi Everyone!

The New Zealand Tourism Research Institute at AUT University and the MORE FM Triwoman series invite you to be part of research towards a Masters Thesis that is seeking to understand athletes' experiences leading up to and following a mass participation sporting event.

This study is a web-survey of participants to the 2009 More FM Triwoman series. The survey will be conducted in three parts: upon registration (Survey 1), one week after the event (Survey 2), and three months after the event (Survey 3). The survey looks at the psychological, behavioural and demographic characteristics of the participants and the levels of physical activity.

Why are we doing this?

There is evidence that increasing physical activity levels improves health and wellbeing. Physical inactivity is now recognized as a key health risk throughout the world and many governments are investing significantly in the promotion of healthy lifestyles with sport participation seen as logical means of engaging in regular physical activity.

We want to understand how events influence physical activity levels. The results from this research may help more New Zealanders to become more physically active in sport and recreation and may also help race directors and local authorities provide better positioned events.

As a participant in the More FM Triwoman series 2009, you are hereby invited to contribute to this study.

Each survey will take approximately 20 minutes to complete. To thank you for your participation, you can go into a draw to win one of six Merida gift packages worth approximately \$100 each, by completing the prize draw entry section at the end of the survey. Details of the gifts are listed at the end of the survey.

Participation is entirely voluntary and you will in no way be disadvantaged should you choose not to take part. If you choose to take part in this research, you can at any point in time decide to withdraw from the subsequent surveys. To participate in this research, simply click on the <Take the Survey> button below. The survey asks questions where you simply use your mouse to click on your answer from a selection given, or type your comments in your own words into the boxes provided. All questions are optional. The survey will run until 15th February 2009 but we would like you to complete the survey at least one week before your race day.

All answers are kept completely anonymous and you will not be able to be personally identified at any time.

We do ask for your email address. All email addresses provided to us will be coded and will not be made available to the researchers. Email addresses are only collected so that we can contact you should you decide to take part in surveys 2 and 3. All email addresses given to us will be kept confidential and will only be used to provide you with a personal link to the next survey.

Contact details given to enter the prize draw are stored separately to your survey answers.

By taking the survey you are giving consent to be part of this research.

Results of this research will be used in journal and conference publications. No personal identifiers will be used at any time. The results of this research will also be available on www.triwoman.co.nz at the end of 2009.

Any concerns regarding the nature of this project should be notified in the first instance to, *Catherine Price*: email czn0744@aut.ac.nz

Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTEK, Madeline Banda, madeline.banda@aut.ac.nz , 09 921 9999 ext 8044.

For further information about this research contact:

Project Supervisor: Geoff Dickson: email geoff.dickson@aut.ac.nz, phone 09 921 9999 ext 7851

Approved by the AUT University Ethics Committee on 07/11/2008, AUTEK Reference number 08/211

Appendix III: Survey One

QuestionPro | MicroPoll | ContactPro | IdeaScale »



News : Oct 19, 2008
New Feature : Branching Randomizer

[Log](#)
[Help](#)

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My Surveys **Edit Survey** **Send Survey** **Reports** **Integration** **Triwoman 1 2008/9**

Edit Survey

Add/Edit Questions
Survey Outline

Survey Link:
<http://www.questionpro.com/akira/TakeSurvey?id=1054005>

[View All Questions](#)

[Edit Header](#) [Add Intro Text](#) [Images/Multimedia](#)

[Preview](#) [Print](#) [Send](#)

Look and Feel

Survey Layout
Images/Multimedia
Validation Prompts

Survey Control

Finish Options
Security
Email Notification

Survey Modes

Randomization Options
Multi-Lingual Options

Global Settings

Global Preferences
Logic/Quota

INTRO

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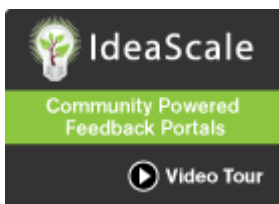
Triwoman 2009 Participant Survey

Catherine Price, a fellow Triwoman triathlete and Masters student at AUT is seeking to understand athlete experiences leading up to and following a mass participation sporting event.

By completing this survey you are giving consent to participate in this research.

For further information on this study, [click here](#).

[Add New Question](#) [Add/Update Logic](#) [Separator](#) [PageBreak](#)



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Q1

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Section A

Based on the category, which event will you take part in on race day?

If you will be taking part as both a team member and an individual in different races over the series, please answer this survey as the individual.

- ☐ Triathlon - Individual
- ☐ Duathlon - Individual







- ☐ Aquathon - Individual
- ☐ Swimmer - Team member
- ☐ Cyclist - team member
- ☐ Runner/walker - Team member

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  Add/Update Logic

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Q52

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Which Triwoman race or races have you entered?







- ☐ Auckland (Sunday 11, January 2009)
- ☐ Christchurch (Sunday 18, January 2009)
- ☐ Palmerston North (Saturday 24, January 2009)
- ☐ Wellington (Sunday 25, January 2009)
- ☐ Hawera (Saturday 31, January 2009)
- ☐ Hamilton (Sunday 01, February 2009)
- ☐ Whangarei (Saturday 07, February 2009)
- ☐ Maraetai (Sunday 08, February 2009)
- ☐ Rotorua (Sunday 15, February 2009)
- ☐ Pt Chevalier (Sunday 22, February 2009)

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 Add New Question
  Add/Update Logic

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Q3

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Have you participated previously in other organised triathlon, swimming, cycling or running/walking events?







- ☐ Yes
- ☐ No

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  Add/Update Logic

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Q51

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THE NEXT SET OF QUESTIONS RELATE TO THE TIME YOU STARTED TO PREPARE FOR YOUR 2009 EVENT

If you started training for the event before entering, please think back to when you started to prepare.

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Q5

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Thinking back to when **you started to prepare** for your 2009 event







In the month prior to beginning preparation for the 2009 event, how many times had you taken part in the following activities ?

Swimming

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Q5







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Cycling

-- Select --

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Q5

 Edit	 Delete	 Copy
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Running/walking

-- Select --

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Q8

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Thinking back to when **you started to prepare** for your 2009 event

How would you have described yourself as a cyclist; swimmer; runner/walker?

	Novice	Tentative	Competent	Regular
Swimmer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cyclist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Runner/Walker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Q9

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Physical activity or exercise includes activities such as walking briskly, jogging, cycling, swimming, or any other activity in which the exertion is at least as intense as these activities.

To be considered active you would need to do these activities for a total of at least 2.5 hours spread over at least 5 different days across the week.

Thinking back to when **you started to prepare** for your 2009 event







Please indicate which of the following categories you feel best describes you prior to starting training for this event

- ☐ I was active, and some or all of the activity was vigorous such as running or cycling. I have been doing this for at least the previous 6 months
- ☐ I was active, but only through moderate activities such as walking. I have been doing this for at least the previous 6 months
- ☐ I was active, and some or all of the activity was vigorous such as running or cycling. I have been doing this for less than 6 months
- ☐ I was active, but only through moderate activities such as walking. I have been doing this for less than 6 months
- ☐ I was inactive, but I intended to become more physically active

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Q62

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Section B

For the purposes of this survey, the term Triathlon is being used to describe an event that incorporates more than one activity of swimming; cycling; running/walking and so includes the Duathlon and Aquathon event options and individuals or team members.

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Q10

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How did you become aware of the Triwoman event series?







Please check all that apply

- ☐ TV
- ☐ Internet
- ☐ Newspaper
- ☐ Radio
- ☐ Magazine
- ☐ Word of Mouth
- ☐ Previous participant
- ☐ Family
- ☐ Friends
- ☐ Work Colleagues
- ☐ Other

 Add New Question
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Q11

 Edit	 Delete	 Copy
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At the time **you started to prepare** for your 2009 event, what prompted you to start participating in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
I feel guilty when I don't exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To improve my appearance	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To give me goals to work towards	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because exercise helps me to burn calories	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I enjoy physical competition	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



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Q11

Edit	Delete	Copy
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At the time **you started to prepare** for your 2009 event, what prompted you to start participating in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
To show my worth to others	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To build up my strength	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To help manage stress	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To avoid ill-health	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I feel at my best when exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



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Q11

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At the time **you started to prepare** for your 2009 event, what

prompted you to start participating in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
To feel more healthy	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to exercise three times per week	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For enjoyment of the experience of exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feel like a failure when I miss exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To make new friends	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



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Q11

Edit	Delete	Copy
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At the time **you started to prepare** for your 2009 event, what prompted you to start participating in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
I feel ashamed when I miss exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To look more attractive	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because it helps to reduce tension	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I enjoy the feeling of exerting myself	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to exercise as much as I can	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



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Page Break

Q11

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At the time **you started to prepare** for your 2009 event, what prompted you to start participating in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
To help control my weight	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To give me personal challenges to face	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't see the point in exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to exercise regularly	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To spend time with friends	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To prevent health problems	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



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Q11

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At the time **you started to prepare** for your 2009 event, what prompted you to start participating in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
Don't see why I should exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I want to maintain good health	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise is a waste of time	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To enjoy the social aspects of exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To gain recognition for my accomplishments	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I enjoy competing	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic









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Q12

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At the time I started to prepare for this event:*Please indicate your agreement with each of the following statements:*

	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
I think you could tell a lot about a person by seeing them participate in triathlons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to other activities, triathlons are very important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I really enjoyed taking part in a triathlon activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It would have required major rethinking to change my preference for triathlons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A lot of my life was organized around triathlons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic









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Q12

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At the time I started to prepare for this event:*Please indicate your agreement with each of the following statements:*







	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
My preference for triathlons would not willingly change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to other sport activities, triathlons were very interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being a triathlete is very important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taking part in a triathlon activity helped me relax when pressures built up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taking part in a triathlon activity gave others a glimpse of the type of person I am	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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 Add New Question
  Add/Update Logic

Page Break

Q12

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 ReOrder	 Settings	 Preview

At the time I started to prepare for this event:

Please indicate your agreement with each of the following statements:







	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
When I took part in a triathlon activity I could really be myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A lot of my time was organized around taking part in a triathlon activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even if close friends recommended participating in another sport activity, I would not stop triathlons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Triathlons are important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Triathlons had a central role in my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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 Add New Question
  Add/Update Logic

Page Break

Q59

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 ReOrder	 Settings	 Preview

At the time **you started to prepare** for the event were you a member of any of the following training groups?

	Club	Fee-paying with a coach (e.g. swim squad)	Regular meetings but no fees (e.g. cycle bunch rides)	None of these
Triathlon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cycling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swimming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Running/Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

 Separator
  PageBreak

 Add New Question
  Add/Update Logic

Page Break

Q50

Edit	Delete	Copy
ReOrder	Settings	Preview

Section C

THE FOLLOWING QUESTIONS NOW RELATE TO THE PRESENT TIME:



Add New Question



Add/Update Logic



Separator



PageBreak

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Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

The next questions ask about physical activity that you may have done in the past 7 days.

Please answer each question even if you do not consider yourself to be an active person. Think about the activities you do at work, as part of your housework and gardening, to get from place to place, and in your spare time for recreation, exercise or sport. The questions ask you separately about brisk walking, moderate activity (for example carrying light loads, bicycling at a regular pace, doubles tennis) and vigorous activity (for example running hard, rugby, netball or fast bicycling).

Do not count the same time spent in an activity more than once:

During the last 7 days, on how many days did you walk at a brisk pace?



Add New Question



Add/Update Logic



Separator



PageBreak

Q16

Edit	Delete	Copy
ReOrder	Settings	Preview

How much time did you usually spend doing such brisk walking on each of those days?

Hours

Minutes









Separator



PageBreak


 Add New Question  Add/Update Logic

Q12







 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis?

-- Select --

 Add New Question  Add/Update Logic  Separator  PageBreak

Q17

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

How much time did you usually spend doing moderate physical activity on each of those days?







Hours

Minutes

 Add New Question  Add/Update Logic  Separator  PageBreak

Page Break

Q18







 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, running hard, rugby, netball or fast bicycling?

-- Select --

 Add New Question  Add/Update Logic  Separator  PageBreak

Q19

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview




How much time did you usually spend doing vigorous physical activity on each of those days?

Hours

Minutes

 Add New Question  Add/Update Logic  Separator  PageBreak

Q20

 Edit	 Delete	 Copy

 ReOrder
  Settings
  Preview

Please answer carefully. Thinking about all your activities (brisk walking, moderate or vigorous), on **how many of the last 7 days** were you active? ("Active" means doing 15 minutes or more of vigorous activity, or a total of 30 minutes or more of moderate activity or brisk walking).

-- Select --







 Add New Question

 Add/Update Logic

 Separator

 PageBreak

Q21

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  Settings
  Preview

Were your answers to the last questions regarding physical activity **during the last 7 days** clearly affected because of pregnancy, work commitments, family commitments, illness, injury, or disability?

- ☐ Yes
☐ No

 Add New Question







 Add/Update Logic

 Separator

 PageBreak

Automatic Logic Break

Q22

 Edit
  Delete
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 ReOrder
  Settings
  Preview

Was that because of:

- ☐ Pregnancy
☐ Work commitments
☐ Family commitments
☐ Temporary illness
☐ Long-term illness
☐ Temporary injury
☐ Long-term injury

 Add New Question







 Add/Update Logic

 Separator

 PageBreak

Page Break

Q23

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  Settings
  Preview

Regular physical activity means at least 15 minutes of vigorous activity (makes you huff and puff) or a total of 30 minutes or more of moderate activity (causes a slight but noticeable increase in breathing and heart rate) each day for 5 or more days each week. Include brisk walking as moderate activity.

Are you regularly “physically active” according to the definition above?

- ☐ No and I do not intend to be in the next 6 months
- ☐ No, but I am thinking about starting to be in the next 6 months
- ☐ No, but I intend to begin in the next 30 days
- ☐ Yes, but I only began in the last 6 months
- ☐ Yes, I am and have been for more than 6 months



Add New Question



Add/Update Logic



Separator



PageBreak

 Page Break

Q50

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ReOrder	Settings	Preview

Section D

THE FOLLOWING QUESTIONS RELATE TO THE PRESENT TIME:



Add New Question



Add/Update Logic



Separator



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Q29

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ReOrder	Settings	Preview

Since deciding to do a 2009 Triwoman Event, have you participated in any other organised triathlon, swimming, cycling or running/walking events?

- ☐ Yes
- ☐ No



Add New Question



Add/Update Logic †



Separator



PageBreak

 Automatic Logic Break

Q30

Edit	Delete	Copy
ReOrder	Settings	Preview

How many?



Add New Question



Add/Update Logic



Separator



PageBreak

 Page Break

Q5

Edit	Delete	Copy
ReOrder	Settings	Preview

How many times have you taken part in the following activities in the previous month?

Swimming

Add New Question
 Add/Update Logic
 Separator
 PageBreak

Q5

Edit	Delete	Copy
ReOrder	Settings	Preview

Cycling

Add New Question
 Add/Update Logic
 Separator
 PageBreak

Q5

Edit	Delete	Copy
ReOrder	Settings	Preview

Running/walking

Add New Question
 Add/Update Logic
 Separator
 PageBreak

 Page Break

Q31

Edit	Delete	Copy
ReOrder	Settings	Preview

Thinking about the present

How would you **now** describe yourself as a swimmer, cyclist, runner?

Novice Tentative Competent Regular







Swimmer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cyclist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Runner / Walker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Separator
 PageBreak

 Add New Question  Add/Update Logic

Page Break







Q35

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 ReOrder	 Settings	 Preview

For how many weeks have you been preparing for the 2009 Triwoman Event?

 Add New Question  Add/Update Logic  Separator  PageBreak

Q36







 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

Approximately how many hours per week do you spend training for the 2009 Triwoman Event?

 Add New Question  Add/Update Logic  Separator  PageBreak

Page Break

Q11

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree						Strongly Agree	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
To improve my appearance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Because I enjoy physical competition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
I feel guilty when I don't exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
To give me goals to work towards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Because exercise helps me to burn calories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

 Add New Question  Add/Update Logic  Separator  PageBreak

Page Break

Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
To show my worth to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I feel at my best when exercising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To help manage stress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To build up my strength	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To avoid ill-health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Add New Question

Add/Update Logic

Separator

PageBreak

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Q11

Edit	Delete	Copy
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At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
To feel more healthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to exercise three times per week	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To make new friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For enjoyment of the experience of exercising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feel like a failure when I miss exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Add New Question

Add/Update Logic

Separator

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Q11

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At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
I intend to exercise as much as I can	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To look more attractive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I enjoy the feeling of exerting myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Don't see why I should exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because it helps to reduce tension	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Add New Question

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Q11

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At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
To give me personal challenges to face	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To spend time with friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To prevent health problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to exercise regularly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To help control my weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't see the point in exercising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Add New Question

Add/Update Logic

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Q11

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At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
I feel ashamed when I miss exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To enjoy the social aspects of exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I want to maintain good health	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise is a waste of time	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I enjoy competing	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To gain recognition for my accomplishments	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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At the moment:

Please indicate your agreement with each of the following statements:







	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
It would have required major rethinking to change my preference for triathlons	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A lot of my life was organized around triathlons	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I really enjoyed taking part in a triathlon activity	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think you could tell a lot about a person by seeing them participate in triathlons	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to other activities, triathlons are very important to me	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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 Add New Question
  Add/Update Logic

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Q12

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At the moment:*Please indicate your agreement with each of the following statements:*







	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree	(7)
Compared to other sport activities, triathlons were very interesting	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Being a triathlete is very important to me	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
My preference for triathlons would not willingly change	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Taking part in a triathlon activity helped me relax when pressures built up	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Taking part in a triathlon activity gave others a glimpse of the type of person I am	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>

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  PageBreak

 Add New Question
  Add/Update Logic

Page Break

Q12

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At the moment:*Please indicate your agreement with each of the following statements:*

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree	(7)
When I took part in a triathlon activity I could really be myself	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
A lot of my time was organized around taking part in a triathlon activity	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Triathlons had a central role in my life	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Even if close friends recommended participating in	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>

another sport activity, I would not stop triathlons

Triathlons are important to me

☐ ☐ ☐ ☐ ☐ ☐ ☐



Add New Question



Add/Update Logic



Separator



PageBreak

Page Break

Q59

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment are you a member of any of the following training groups?

	Club	Fee-paying with a coach (e.g. swim squad)	Regular meetings but no fees (e.g. cycle bunch rides)	None of the above
Triathlon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cycling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swimming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Running/Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Add New Question



Add/Update Logic



Separator



PageBreak

Page Break

Q45

Edit	Delete	Copy
ReOrder	Settings	Preview

Section E

Demographics

To which age group do you belong?

-- Select --



Add New Question



Add/Update Logic



Separator



PageBreak

Q46

Edit	Delete	Copy
ReOrder	Settings	Preview

What is your highest school or educational qualification?

- ☐ None
- ☐ NZ School Certificate or NCEA Level 1

- ☐ NZ Sixth Form Certificate or NCEA Level 2
- ☐ NZ A or B Bursary, Scholarship or NCEA Level 3
- ☐ Other NZ Secondary School Qualification
- ☐ Overseas Secondary School Qualification
- ☐ Bachelor Degree
- ☐ Post-Graduate Degree
- ☐ Other complete qualification taking three or more months of full-time study, or the equivalent to complete (e.g. diploma, trade certificate)



Add New Question



Add/Update Logic



Separator



PageBreak

Page Break

Q47

Edit	Delete	Copy
ReOrder	Settings	Preview

Which best describes your household?

Do you live with:

- ☐ Partner (no children)
- ☐ Partner + children
- ☐ Children only
- ☐ Alone
- ☐ Flatmates
- ☐ Extended family / whanau



Add New Question



Add/Update Logic



Separator



PageBreak

Q48

Edit	Delete	Copy
ReOrder	Settings	Preview

Which one of the following best describes your occupation?

(Please mark one box only - if more than one category applies, mark the one you spend most time doing over a week.)

- ☐ Working full-time
- ☐ Working part-time
- ☐ Full-time Mother/Home-maker
- ☐ At home/Retired
- ☐ Unemployed/Actively seeking a job
- ☐ Sick/Invalid

○ Student



Add New Question



Add/Update Logic



Separator



PageBreak

Page Break

Q39

Edit	Delete	Copy
ReOrder	Settings	Preview

If you would like to enter the draw to WIN one of two \$100 vouchers for, please fill in your name and contact email address. These details are in no way linked to your survey answers, are confidential, and will not be used for any other purpose.

If you do not wish to enter the draw, please click Next.

Name

Email



Add New Question



Add/Update Logic



Separator



PageBreak

Page Break

Q40

Edit	Delete	Copy
ReOrder	Settings	Preview

An essential part of this research is to discover whether people maintain their physical activity levels after an event. The follow up surveys will take place one week and 12 weeks after the event.

We ask you to participate in these next stages of the research by providing your email address. Your email details will be kept anonymous to the researchers so that you will not be able to be identified at any time. All email addresses provided will be kept confidential, and will not be shared with any third party. They will only be used to email you a link to the subsequent surveys.

If you are not interested in participating in the follow up survey click 'Complete Survey'.

Email



Add New Question



Add/Update Logic



Separator



PageBreak



Edit Footer



Thank You Page

Please contact [NZTRI](#) if you have any questions regarding this survey.

Appendix IV: Survey Two

QuestionPro | MicroPoll | ContactPro | IdeaScale »



News : Oct 19, 2008
New Feature : Branching Randomizer

[Log](#)
[Help](#)

Corpor
(Monthly
N/

My Surveys **Edit Survey** **Send Survey** **Reports** **Integration** **Triwoman 2 2009**

Edit Survey

Add/Edit Questions
Survey Outline

Survey Link:
<http://www.questionpro.com/akira/TakeSurvey?id=1079886>

[View All Questions](#)

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[Preview](#) [Print](#) [Send](#)

Look and Feel

Survey Layout
Images/Multimedia
Validation Prompts

Survey Control

Finish Options
Security
Email Notification

Survey Modes

Randomization Options
Multi-Lingual Options

Global Settings

Global Preferences
Logic/Quota

INTRO

[Edit](#) [Delete](#) [Copy](#)
[ReOrder](#) [Settings](#) [Preview](#)

Triwoman 2009 Participant Survey

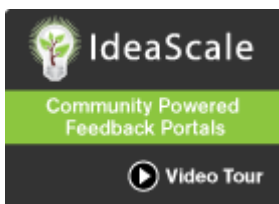
Catherine Price, a fellow Triwoman triathlete and Masters student at AUT is continuing research into understanding athlete experiences following a mass participation sporting event.

By completing this survey you are giving consent to participate in this research.

For further information on this study, [click here](#).

[Add New Question](#) [Add/Update Logic](#) [Separator](#) [PageBreak](#)

Page Break



Q59

[Edit](#) [Delete](#) [Copy](#)
[ReOrder](#) [Settings](#) [Preview](#)

Have you already completed a Triwoman race in 2009, been sent and completed this questionnaire?

- ☐ Yes
☐ No

[Add New Question](#) [Add/Update Logic](#) [Separator](#) [PageBreak](#)

Page Break | Automatic Logic Break

Q1



[Edit](#) [Delete](#) [Copy](#)

 ReOrder	 Settings	 Preview
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Section A







Based on the categories below, which event did you take part in on race day?

- ☐ Triathlon - Individual
- ☐ Duathlon - Individual
- ☐ Aquathon - Individual
- ☐ Swimmer - Team member
- ☐ Cyclist - team member
- ☐ Runner/walker - Team member

 Add New Question	 Add/Update Logic	 Separator	 PageBreak
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Page Break

Q3







 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

Since registering for this event, have you participated in other organised triathlon, swimming, cycling or running/walking events besides the Triwoman event?

- ☐ Yes
- ☐ No

 Add New Question	 Add/Update Logic	 Separator	 PageBreak
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Q33

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

How many?

 Add New Question	 Add/Update Logic	 Separator	 PageBreak
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Q5







 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

Over the last month, how many times have you taken part in the following activities ?

Swimming

 Add New Question
  Add/Update Logic
  Separator
  PageBreak







Q5

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

Cycling

 Add New Question
  Add/Update Logic
  Separator
  PageBreak

Q5







 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

Running/walking

 Add New Question
  Add/Update Logic
  Separator
  PageBreak

 Page Break

Q8

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview







At the moment, how would you describe yourself as a cyclist;
swimmer; runner/walker?

	Novice	Tentative	Competent	Regular
Swimmer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cyclist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Runner/Walker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

 Add New Question
  Add/Update Logic
  Separator
  PageBreak

 Page Break

Q55







 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

Over the last month, how many hours per week did you spend
training for your Triwoman event?

 Separator
  PageBreak

 Add New Question  Add/Update Logic

Q11

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

At the moment, why do you take part in Triathlons?







Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
Because I enjoy physical competition	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel guilty when I don't exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To give me goals to work towards	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because exercise helps me to burn calories	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To improve my appearance	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

 Add New Question  Add/Update Logic  Separator  PageBreak

Page Break

Q11

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
To help manage stress	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To build up my strength	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To show my worth to others	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I feel at my best when exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To avoid ill-health	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

 Add New Question  Add/Update Logic  Separator  PageBreak

Page Break

Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	(7)	Strongly Agree
I intend to exercise three times per week	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
To feel more healthy	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
To make new friends	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Feel like a failure when I miss exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
For enjoyment of the experience of exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Add New Question
 Add/Update Logic
 Separator
 PageBreak

Page Break

Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	(7)	Strongly Agree
To look more attractive	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
I intend to exercise as much as I can	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Because I enjoy the feeling of exerting myself	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Because it helps to reduce tension	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Don't see why I should exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Add New Question
 Add/Update Logic
 Separator
 PageBreak

Page Break

Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
To prevent health problems	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To help control my weight	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't see the point in exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to exercise regularly	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To spend time with friends	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To give me personal challenges to face	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



Separator



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Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
Because I want to maintain good health	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To gain recognition for my accomplishments	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To enjoy the social aspects of exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise is a waste of time	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I enjoy competing	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel ashamed when I miss	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

exercise



Add New Question



Add/Update Logic



Separator



PageBreak

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Q12

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment:*Please indicate your agreement with each of the following statements:*

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree	(7)
It would have required major rethinking to change my preference for triathlons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to other activities, triathlons are very important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I really enjoyed taking part in a triathlon activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A lot of my life was organized around triathlons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think you could tell a lot about a person by seeing them participate in triathlons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



Separator



PageBreak

Page Break

Q12

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment:*Please indicate your agreement with each of the following statements:*

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree	(7)
My preference for triathlons would not willingly change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being a triathlete is very important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taking part in a triathlon activity gave others a glimpse of the type of person I am	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taking part in a triathlon activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

helped me relax when pressures
built up

Compared to other sport
activities, triathlons were very
interesting

☐ ☐ ☐ ☐ ☐ ☐ ☐


Add New Question



Add/Update Logic



Separator



PageBreak

Page Break

Q12

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment:

Please indicate your agreement with each of the following statements:

	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Even if close friends recommended participating in another sport activity, I would not stop triathlons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Triathlons had a central role in my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Triathlons are important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A lot of my time was organized around taking part in a triathlon activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I took part in a triathlon activity I could really be myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



Separator



PageBreak




Page Break

Q59

Edit	Delete	Copy
ReOrder	Settings	Preview







At the moment are you a member of any of the following training
groups?

	Club	Fee-paying with a coach (e.g. swim squad)	Regular meetings but no fees (e.g. cycle bunch rides)	None of the above
Triathlon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cycling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swimming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Running/Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

 Add New Question
  Add/Update Logic
  Separator
  PageBreak





Page Break

Q45







 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

Apart from one MORE FM Classic shirt, did you purchase additional merchandise at or before the event?

- ☐ Yes - online before the event
- ☐ Yes - at the event
- ☐ No - but I am currently thinking about purchasing some more merchandise
- ☐ No - and I do not intend to purchase any more

 Add New Question
  Add/Update Logic
  Separator
  PageBreak







Q27

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

Approximately, what was the value of your purchase?

 Add New Question
  Add/Update Logic
  Separator
  PageBreak

Q25

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

The following set of statements relate to your overall feelings about your participation in your 2009 Triwoman event.







For each statement, please indicate on the scale below what best reflects your feelings.

	<div style="display: flex; justify-content: space-between; align-items: center;"> <div> Strongly Disagree (1) </div> <div> (2) (3) (4) (5) (6) </div> <div> Strongly Agree (7) </div> </div>						
I am satisfied with my decision to participate in the Triwoman Event.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not happy that I participated in Triwoman Event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did the right thing by deciding to participate in the Triwoman Event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

 Separator
  PageBreak

 Add New Question  Add/Update Logic

Q25

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview







Based on your participation in the event, please click on the number that indicates how likely you are to undertake each of the following.

	Extremely Unlikely	(1)	(2)	(3)	(4)	(5)	(6)	Extremely Likely	(7)
Say positive things about the Triwoman Event	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Participate at next year's Triwoman Event even if the entry fee is increased	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Do more fitness (e.g. swimming or running) events	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Join a triathlon (or similar) club or training group	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Attend next year's Triwoman Event	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Do more triathlon events	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Encourage others to participate in next year's Triwoman Event	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>

 Add New Question  Add/Update Logic

 Separator  PageBreak

Q39

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

If you would like to enter the draw to WIN one of two \$100 vouchers for, please fill in your name and contact email address. These details are in no way linked to your survey answers, are confidential, and will not be used for any other purpose.

If you do not wish to enter the draw, please click Next.

Name

Email

 Add New Question  Add/Update Logic

 Separator  PageBreak

Page Break



[Edit Footer](#)



[Thank You Page](#)

Please contact [NZTRI](#) if you have any questions regarding this survey.

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Appendix V Survey Three

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News : Oct 19, 2008
New Feature : Branching Randomizer

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My Surveys **Edit Survey** **Send Survey** **Reports** **Integration** **Triwoman 3 2009**

Edit Survey

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Survey Outline

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Global Settings

Global Preferences
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INTRO

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Triwoman 2009 Participant Survey 3

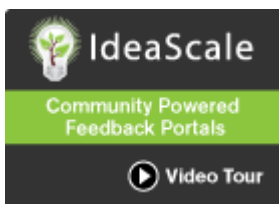
Catherine Price, a fellow Triwoman triathlete and Masters student at AUT is continuing research into understanding athlete experiences following a mass participation sporting event.

By completing this survey you are giving consent to participate in this research.

For further information on this study, [click here](#).

[Add New Question](#) [Add/Update Logic](#) [Separator](#) [PageBreak](#)

Page Break



Q59

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Have you already completed a Triwoman race in 2009, been sent and completed the Triwoman Participant Survey 3?

- ☐ Yes
☐ No

[Add New Question](#) [Add/Update Logic](#) [Separator](#) [PageBreak](#)

Page Break | Automatic Logic Break

Q1




[Edit](#) [Delete](#) [Copy](#)

 ReOrder	 Settings	 Preview
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Section A







Based on the categories below, which event did you take part in on race day?

- ☐ Triathlon - Individual
- ☐ Duathlon - Individual
- ☐ Aquathon - Individual
- ☐ Swimmer - Team member
- ☐ Cyclist - team member
- ☐ Runner/walker - Team member

 Add New Question	 Add/Update Logic	 Separator	 PageBreak
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Page Break


Q3

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

Have you participated in any organised sporting events since your 2009 Triwoman Event?







(Please mark Yes if you participated in more than one Triwoman event).

- ☐ Yes
- ☐ No

 Add New Question	 Add/Update Logic †	 Separator	 PageBreak
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Automatic Logic Break

Q33







 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

How many?

 Add New Question	 Add/Update Logic	 Separator	 PageBreak
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Page Break

Q5

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 ReOrder	 Settings	 Preview

Over the last month, how many times have you taken part in the

following activities ?

Swimming

-- Select --



Add New Question



Add/Update Logic



Separator



PageBreak

Q5

Edit	Delete	Copy
ReOrder	Settings	Preview

Cycling

-- Select --



Add New Question



Add/Update Logic



Separator



PageBreak

Q5

Edit	Delete	Copy
ReOrder	Settings	Preview

Running/walking

-- Select --



Add New Question



Add/Update Logic



Separator



PageBreak

Page Break

Q8

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ReOrder	Settings	Preview

At the moment, how would you describe yourself as a cyclist;
swimmer; runner/walker?

	Novice	Tentative	Competent	Regular
Swimmer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cyclist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Runner/Walker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



Separator



PageBreak

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Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Because exercise helps me to burn calories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I enjoy physical competition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel guilty when I don't exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To give me goals to work towards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To improve my appearance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



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Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
To avoid ill-health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To build up my strength	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To show my worth to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To help manage stress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I feel at my best when exercising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



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PageBreak

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Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
For enjoyment of the experience of exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to exercise three times per week	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feel like a failure when I miss exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To make new friends	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To feel more healthy	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



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PageBreak

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Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
Don't see why I should exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I enjoy the feeling of exerting myself	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To look more attractive	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to exercise as much as I can	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because it helps to reduce tension	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



Separator



PageBreak

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Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
To spend time with friends	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To help control my weight	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't see the point in exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to exercise regularly	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To give me personal challenges to face	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To prevent health problems	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



Separator



PageBreak

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Q11

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment, why do you take part in Triathlons?

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree
To enjoy the social aspects of exercising	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To gain recognition for my accomplishments	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I want to maintain good health	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise is a waste of time	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because I enjoy competing	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel ashamed when I miss exercise	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Add New Question



Add/Update Logic



Separator



PageBreak

Page Break

Q12

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Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment:

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree	(7)
I really enjoyed taking part in a triathlon activity	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
I think you could tell a lot about a person by seeing them participate in triathlons	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Compared to other activities, triathlons are very important to me	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
A lot of my life was organized around triathlons	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
It would have required major rethinking to change my preference for triathlons	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>

Add New Question
 Add/Update Logic
 Separator
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Page Break

Q12

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment:

Please indicate your agreement with each of the following statements:

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree	(7)
Compared to other sport activities, triathlons were very interesting	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Being a triathlete is very important to me	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Taking part in a triathlon activity gave others a glimpse of the type of person I am	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Taking part in a triathlon activity helped me relax when pressures built up	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
My preference for triathlons would not willingly change	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>

Add New Question
 Add/Update Logic
 Separator
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Q12

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment:*Please indicate your agreement with each of the following statements:*

	Strongly Disagree	(1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree	(7)
When I took part in a triathlon activity I could really be myself	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Even if close friends recommended participating in another sport activity, I would not stop triathlons	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Triathlons are important to me	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
Triathlons had a central role in my life	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>
A lot of my time was organized around taking part in a triathlon activity	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>



Add New Question



Add/Update Logic



Separator



PageBreak

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Q59

Edit	Delete	Copy
ReOrder	Settings	Preview

At the moment are you a member of any of the following training groups?

	Club	Fee-paying with a coach (e.g. swim squad)	Regular meetings but no fees (e.g. cycle bunch rides)	None of the above
Triathlon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cycling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swimming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Running/Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Add New Question



Add/Update Logic



Separator



PageBreak

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Q25

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ReOrder	Settings	Preview

The following set of statements relate to your overall feelings about your participation in your 2009 Triwoman event.

For each statement, please indicate on the scale below what best reflects your feelings.

	Strongly Disagree						Strongly Agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
I am not happy that I participated in Triwoman Event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with my decision to participate in the Triwoman Event.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did the right thing by deciding to participate in the Triwoman Event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Add New Question
 Add/Update Logic
 Separator
 PageBreak

Q25







Edit	Delete	Copy
ReOrder	Settings	Preview

Based on your participation in the event, please click on the number that indicates how likely you are to undertake each of the following.

	Extremely Unlikely						Extremely Likely
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Attend next year's Triwoman Event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encourage others to participate in next year's Triwoman Event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do more triathlon events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participate at next year's Triwoman Event even if the entry fee is increased	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Join a triathlon (or similar) club or training group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Say positive things about the Triwoman Event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do more fitness (e.g. swimming or running) events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Add New Question
 Add/Update Logic
 Separator
 PageBreak

Q9

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

Physical activity or exercise includes activities such as walking briskly, jogging, cycling, swimming, or any other activity in which the exertion is at least as intense as these activities.

To be considered active you would need to do these activities for a total of at least 2.5 hours spread over at least 5 different days across the week.

At the moment

Please indicate which of the following categories you feel best describes you:

- ☐ I am active, and some or all of the activity is vigorous such as running or cycling. I have been doing this for at least the previous 6 months
- ☐ I am active, but only through moderate activities such as walking. I have been doing this for at least the previous 6 months
- ☐ I am active, and some or all of the activity is vigorous such as running or cycling. I have been doing this for less than 6 months
- ☐ I am active, but only through moderate activities such as walking. I have been doing this for less than 6 months
- ☐ I am inactive, but I intended to become more physically active



Add New Question



Add/Update Logic









Separator



PageBreak

 Page Break

Q11

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

The next questions ask about physical activity that you may have done in the past 7 days.







Please answer each question even if you do not consider yourself to be an active person. Think about the activities you do at work, as part of your housework and gardening, to get from place to place, and in your spare time for recreation, exercise or sport. The questions ask you separately about brisk walking, moderate activity (for example carrying light loads, bicycling at a regular pace, doubles tennis) and vigorous activity (for example running hard, rugby, netball or fast bicycling).

Do not count the same time spent in an activity more than once:

During the last 7 days, on how many days did you walk at a brisk pace?

 Add New Question
  Add/Update Logic
  Separator
  PageBreak

Q16

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview







How much time did you usually spend doing such brisk walking on each of those days?

Hours

Minutes

 Add New Question
  Add/Update Logic
  Separator
  PageBreak







Q12

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis?

 Add New Question
  Add/Update Logic
  Separator
  PageBreak

Q17

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

How much time did you usually spend doing moderate physical activity on each of those days?







Hours

Minutes

 Add New Question
  Add/Update Logic
  Separator
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 Page Break

Q19

 Edit	 Delete	 Copy
 ReOrder	 Settings	 Preview

How much time did you usually spend doing vigorous physical activity on each of those days?

Hours

Minutes

 Add New Question
  Add/Update Logic
  Separator
  PageBreak

Q20

Edit	Delete	Copy
ReOrder	Settings	Preview

Please answer carefully. Thinking about all your activities (brisk walking, moderate or vigorous), on **how many of the last 7 days** were you active? ("Active" means doing 15 minutes or more of vigorous activity, or a total of 30 minutes or more of moderate activity or brisk walking).

-- Select --

Add New Question Add/Update Logic Separator PageBreak

Q21

Edit	Delete	Copy
ReOrder	Settings	Preview

Were your answers to the last questions regarding physical activity **during the last 7 days** clearly affected because of pregnancy, work commitments, family commitments, illness, injury, or disability?

- ☐ Yes
☐ No

Add New Question Add/Update Logic Separator PageBreak

Q22

Edit	Delete	Copy
ReOrder	Settings	Preview

Was that because of:

- ☐ Pregnancy
☐ Work commitments
☐ Family commitments
☐ Temporary illness
☐ Long-term illness
☐ Temporary injury
☐ Long-term injury

Add New Question Add/Update Logic Separator PageBreak

Page Break

Q23

Edit	Delete	Copy
ReOrder	Settings	Preview

Regular physical activity means at least 15 minutes of vigorous activity (makes you huff and puff) or a total of 30 minutes or more of moderate activity (causes a slight but noticeable increase in breathing and heart rate) each day for 5 or more days each week. Include brisk walking as moderate activity.

Are you regularly “physically active” according to the definition above?

- ☐ No and I do not intend to be in the next 6 months
- ☐ No, but I am thinking about starting to be in the next 6 months
- ☐ No, but I intend to begin in the next 30 days
- ☐ Yes, but I only began in the last 6 months
- ☐ Yes, I am and have been for more than 6 months



Add New Question



Add/Update Logic



Separator



PageBreak

Page Break

Q39

Edit	Delete	Copy
ReOrder	Settings	Preview

If you would like to enter the draw to WIN one of two \$100 vouchers for, please fill in your name and contact email address. These details are in no way linked to your survey answers, are confidential, and will not be used for any other purpose.

If you do not wish to enter the draw, please click Next.

Name

Email



Add New Question



Add/Update Logic



Separator



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Edit Footer



Thank You Page

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