PSYCHOLOGICAL WELLNESS IN ATHLETES WHO ENGAGE IN AEROBIC AND RESITANCE TRAINING

A COMPARATIVE STUDY

By

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A dissertation submitted in partial fulfilment for the requirements of the degree of Masters of Arts in Counselling Psychology at the University of Zululand.

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NOVEMBER 2005

Declaration

I, Kevin Kubindhren Palavar, hereby declare that the work: Psychological wellness in athletes who engage in aerobic and resistance training: A comparative study is my authentic work. All sources that were consulted or cited are acknowledged in the text as well as in the list of reference.

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Dedication

To my late grandfather (11/01/ 1923-11/10/2005) "Srinivasan Palavar":

I wish that you could have been here with me to share in this momentous occasion.

Acknowledgments

I wish to extend my deepest gratitude to the following people:

Anneline Moodley "My better half": I am eternally grateful to you for believing in me and supporting me throughout this endeavor. Without your assistance this would not have been possible.

My parents "Percy & Girlie Palavar": I am blessed that you raised in a manner that I could realize my full potential.

My grandmother "Ranganayagi Palavar": You are my pillar of strength and I live to make you proud.

My supervisor "Professor Edwards": I thank you for your expert advice, guidance and friendship.

Abstract

Health is viewed as a complete state of well-being and not only the prevention of disease. This research was embarked upon to highlight the importance of health promotion as a method of improving one's health as compared to disease prevention.

This study aims to detect whether there is a substantial difference in psychological wellness between individuals who exercise and those individuals that a sedentary. Secondly, this study aspires to determine whether there is a difference in psychological wellness between individuals who engage in different forms of physical activity.

This study motivated by the fact that no other previous international research has implemented the Ryff's scales of psychological well-being (1995) and Fox's physical self-perception profile (1990) concurrently.

It is hoped that results from the proposed scheme of work will afford experts in the field of health with further insight as to the importance of physical activity as a prescription for health promotion.

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Chapter One

1.1 Introduction

This study scrutinizes the correlation between physical activity and psychological wellness. A world of ever-increasing stress, disease and death has forced scientists and investigators to embark on research where participation in physical activity could be seen as a miracle-cure to these tribulations.

The World Health Organization defines health not merely in terms of disease but also as a state of complete physical, mental and social well-being (WHO, 1946). According to Dickman (1988) wellness (well-being) refers to a feeling, a conscious perception, and awareness by the whole person that his or her components and processes are not only under control but working together harmoniously as a unit. These feelings are intensely personal and may be, at least temporarily, almost independent of the state of the world. A person who desires some degree of wellness needs to understand its relation to behaviour. Wellness is associated with behaviour through thoughts. Wellness leads to certain kinds of behaviour and these behaviours, in turn, affect the degree of wellness.

Wellness involves the integration of many dimensions including, emotional, intellectual, physical, social and spiritual. Wellness has been recognized as the positive component of optimal health as evidenced by a sense of well-being reflected in optimal functioning, a good quality of life, meaningful work and a contribution to society (Corbin & Lindsey, 1997).

The proposed research, however, will only focus on the mental or psychological dimension of the above mentioned dimensions of wellness. In particular it will be concerned with standardized measures of psychological well-being (Ryff, 1989), and physical self perception (Fox, 1989).

1.2 Statement of the problem

According to Fox (2000) exercise is associated with improved wellness. Kravitz (1998) also postulated that physical activity improves psychological well-being. The proposed scheme of work will be embarked upon to in order to investigate whether there is a difference in psychological wellness between those individuals who engage in aerobic exercise and those that engage in resistance training.

1.3 Motivation for the study

Firstly, this research is motivated by a belief in the fundamental importance of health promotion as a method of improving health as distinct from disease prevention. Regular and appropriate forms of resistance training and aerobic exercise are both recognized as suitable methods of promoting health. Positive psychological well-being and physical self perception are two aspects of health.

Secondly, except for local research, no previous international investigations have used both the Ryff (1989) and Fox (1990) scales of psychological well-being and the dimensions of the physical self-perception concurrently. These standardized scales are

brief, easy to use, reader friendly and comparable (Edwards, Ngcobo, Edwards & Palavar, 2004).

1.4 Hypotheses

The main hypothesis is that there is a significant difference in psychological wellness between individuals who engage in regular exercise as compared to those individuals who do not participate in any form of physical activity. The secondary hypothesis was that there would be a significant difference in psychological wellness between individuals who participate in aerobic exercise and those who participate in resistance training.

Concerning Ryff's (1995) scales of Psychological Well-Being (PWB) it was hypothesized that the runners would perform better than resistance trainers in the following dimensions: Autonomy, Personal Growth, Positive Relations With Others and Self-Acceptance. It was also hypothesized that resistance trainers would perform better than runners in the following dimensions: Environmental Mastery and Purpose In Life.

Concerning the Fox's (1990) Physical Self-Perception Profile (PSPP), it was hypothesized that runners' self-perceptions would be better in the following dimensions: Sport Competence, Physical Condition, and Physical Self-Worth. It was also hypothesized that the resistance trainers' self-perceptions would be better than runners in the following dimensions: Body Attractiveness, and Physical Strength.

1.5 Definitions of terms

- **Psychological wellness** – Psychological health is more than the absence of illness. Psychological health refers to both our emotional and mental states. Emotional health refers to feelings and moods. Mental health describes our ability to perceive reality as it is, to respond to change and to develop strategies for living (Giannotti, 2003).

- **Physical exercise** – Physical exercise refers to a particular subset of planned activities and purposeful attempts to improve health and well-being (Fox, 2000, Edwards, 20001a).

- **Aerobic exercise** –Aerobic means "in the presence of oxygen." Aerobic activity is activity in which the body is able to supply adequate oxygen to sustain performance (Corbin & Lindsey, 1997).

- **Resistance training** – Resistance training refers to common forms of strength training such as weight training (with free weights or machines) and calisthenics (using all or some portion of body weight as resistance) as well as training with equipment providing pneumatic (air pressure), hydraulic (oil pressure) and electromechanical resistance (Sale, 1989).

1.6 Aims

1. To deduce whether there is a significant difference in psychological wellness between exercisers and non-exercisers.
2. To deduce whether there is a significant difference in psychological wellness between individuals who participate in aerobic exercise (runners) and those individuals who participate in resistance training (gym-goers).
3. To create an awareness of the importance of psychological wellness and physical exercise.
4. To provide feedback to those participants who require it.

1.7 Methodology

1.7.1 Target population

The type of aerobic exercise that is going to be assessed is running. Runners from the various running clubs in the Zululand vicinity will be assessed. Resistance training assessment will include all those individuals who engage in weight training only. Individuals from the surrounding gyms in the Empangeni and Richards Bay region who meet these criteria will be assessed. In addition to the above mentioned groups, a group of non-exercisers will also be sampled. This group will comprise students from the University of Zululand who do no participate in any form of physical activity.

1.7.2 Sampling method

Subjects will be haphazardly sampled and assessed based on their willingness to participate in the research. Harris (1995) defines haphazard or convenience sampling as a process in which researchers select a sample primarily because it is accessible and reasonably representative of the population of interest.

1.7.3 Method of data collection

A questionnaire will be used to obtain demographic information and participants' perceptions of psychological wellness. Psychological wellness will be assessed using Ryff's Scales of Psychological Well-Being (Ryff, 1995). This scale divides psychological wellness into six components, namely:

1. Autonomy
2. Environmental mastery
3. Personal growth
4. Positive relations with others
5. Purpose in life
6. Self-Acceptance

Physical Self-Perception will be assessed by using the Physical Self-Perception Profile developed by Fox (1990). The Physical Self-Perception Profile consists of five subscales, namely:

1. Sport competence
2. Physical condition

3. Body attractiveness
4. Physical strength
5. Physical self-worth

1.7.4 Data analysis

The independent variables are those individuals that engage in aerobic exercise and those that engage in resistance training. The dependent variables are the six dimensions of psychological wellness in Ryff's Scales of Psychological Well-Being and the five dimensions of The Physical Self-Perception Profile, which includes The Perceived Importance Scale. In Ryff's scale, participants respond using a six-point format: strongly disagree(1), moderately disagree(2), slightly disagree(3), slightly agree(4), moderately disagree(5), strongly agree(6). The scores of certain questions in the Ryff's Scale are reversed. In the Physical Self-Perception Profile, participants respond by marking one of four possible choices. As with the Ryff's Scale, the score of some questions on the Physical Self-Perception Profile are reversed. Once the individual scores for endurance athletes, resistance trainers and the non-exercisers have been tallied, the results will be compared using ANOVA (Analysis of Variance), which is a statistical technique used to analyze data.

1.8 Value of the Study

The proposed scheme of work will yield valuable results. The knowledge gained will enable specialists in the field of health, sport and psychology to recommend appropriate forms of exercise that will enhance their clients' psychological wellness. This research

will also provide researchers with data on psychological wellness, which can be used to compare individuals that do not participate in physical activity.

1.9 Summary

Chapter One introduces the study, which examines the relationship between physical activity and psychological wellness. This chapter identifies the motivation, aims and value of the study. It also provides definitions for important terminology and examines the hypotheses that the study intends to investigate.

Chapter Two provides an in-depth literature review where, existing information on the relationship between physical activity and psychological wellness are examined.

Chapter Three identifies the research methodology employed for this study. Sampling, research design and data collection make up the bulk of this chapter.

Chapter Four examines the data collected and the statistical analysis of the data. It also provides a discussion of significant findings.

Chapter Five offers recommendations and a conclusion of the study embarked upon.

The following chapter provides a literature review on information pertaining to the subject under investigation.

Chapter Two: Literature review

2.1 Introduction

The following chapter identifies existing literature on the subject that is the focus of this study. It provides definitions of important terminology, information on benefits of exercise, and components of health and wellness, and it examines research of proponents considered to be experts in this field of study.

2.2 Physical activity and health defined

According to Corbin and Lindsey (1997) exercise can be defined as physical activity done for the purpose of getting fit. Physical activity refers to an umbrella term describing any bodily movement produced by skeletal muscles resulting in energy expenditure (Stuart, Biddle, Fox & Boutcher, 2000; Corbin & Lindsey, 1997).

In 1946 the World Health Organization (WHO) defined health not merely as the absence of disease but also a state of complete physical, mental and social well-being. Donatelle, Snow and Wilcox (1999) asserted that the terms health and wellness are often used interchangeably but their meanings differ in subtle but important ways. They assert that presently most people would describe health as being multidimensional, including many different components and encompassing many different aspects of life. Health is ever-changing, implying that you can influence your health either positively or negatively on an ever-changing basis (Donatelle *et al*, 1999).

2.3 Components of health

The components of health identified by Donatelle *et al* (1999) include the following:

Social health – This refers to the process of creating and motivating healthy relationships through the choices we make. What is also important to social health is the ability to interact well with people and to satisfy interpersonal relationships.

Physical health – This refers to the process of making choices to create a flexible, cardiovascular fit, energetic, strong body, one that is able to perform daily tasks without undue fatigue. Physical health is influenced by choices made regarding exercise, nutrition, rest, stress management, drug use, injury prevention, disease avoidance, and appropriate treatment for illness and disease.

Intellectual health – This refers to the process using the mind to create a greater understanding and appreciation of the self, others and the environment. Intellectual health involves the ability to learn and to think rationally.

Psychological health – This refers to the process of accepting one's worth and the worth of others; creating, recognizing and expressing feelings in an appropriate way; and practicing positive "self talk" which is designed to keep one optimistic rather than focusing on the negative aspects of life.

Environmental health – This refers to the process of making choices that will contribute to sustaining and improving the quality of the environment for current and future generations.

Spiritual health – This refers to the process of creating and discovering meaning and purpose in life, recognizing one's place in the greater scheme of existence and demonstrating values through behaviour.

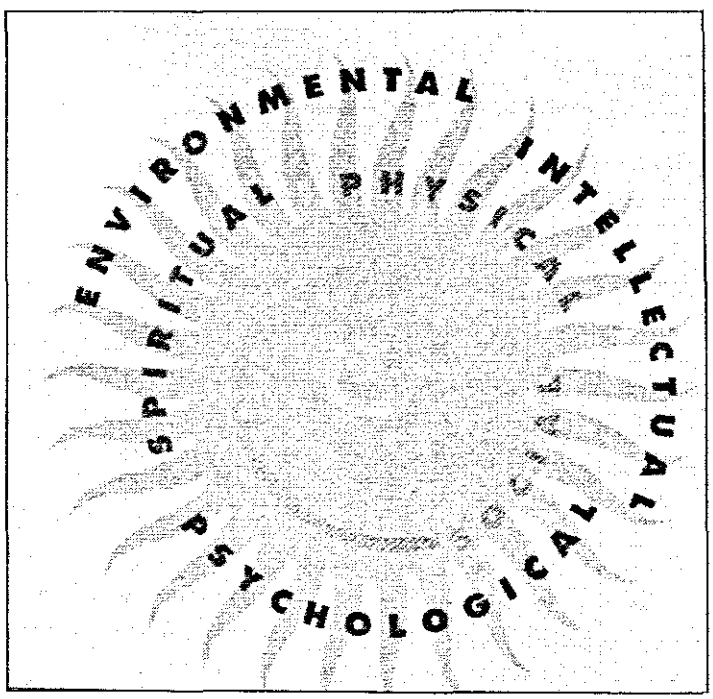

Figure 1 Six components of wellness (Donetella *et al*, 1999)

Figure1 illustrates the six components of health. In order to lead a healthy life one needs to find homeostasis between these six components. Often people tend to focus on a

single component and ignore the rest. For example if one quits consuming alcohol and one takes up aerobics to lose weight, these changes would be considered as an improvement in health. However if this activity takes time away from studies or social life, one may find that instead of feeling good about oneself, one may feel unhappy or one may make others unhappy if one avoids one's responsibilities. This example depicts that although physical exercise is an essential component of health, one should not disregard the other components of health. The essence of leading a healthy life is to find a balance between these components.

2.4 Promotion and prevention defined

According to Donatelle, Davis and Hoover (1988) and Donatelle *et al* (1999), our understandings of the meaning of health have been much improved through the concepts of health promotion and diseases prevention. Health promotion is defined as any combination of educational, organizational, economic, and environmental supports for behaviours that are beneficial to health (Donatelle *et al*, 1988). Donatelle *et al* (1999) describe disease prevention as a process whereby an individual seeks to reduce the occurrence and severity of various diseases, with a goal to reduce or eliminate behaviours that might increase the risk for disease.

2.5 Wellness defined

Dunn (1977) defined wellness as the active process of becoming aware of health and making choices in order to create a healthier life in all of life's dimensions. Wellness describes a lifestyle where all components of health are integrated. An individual who is

committed to wellness is constantly striving to achieve the optimum level of health within the framework of his/her own capabilities and limitations (Donatelle *et al*, 1999).

2.6 The twelve lifestyles vital to optimal wellness

Donatelle *et al* (1999) argue that individuals need to take a sincere look at their own capabilities and limitations and those they should attempt to change those negative factors that are within their power to change. Corbin and Lindsey (1997) identified 12 lifestyles that are vital to optimal wellness. These lifestyles include:

Participating in physical activity regularly

Regular physical activity is associated with the reduced risk of many diseases. Regular exercise is a positive addiction. It is habit-forming but the habit is positive. Regular exercise can be fun and it can improve a person's quality of life.

Eating properly

Good eating habits can help one feel and look their best. Failure to eat properly may result in many health problems. Many individuals often modify their diets in an attempt to assume control of their appearance and health. However, many of these dietary modifications have an adverse rather than positive impact on health.

Managing stress

Reducing stress in one's life and learning to cope with stress are associated with feelings of well-being and improved quality of life.

Avoiding destructive habits

Among the most destructive habits are the use of tobacco and alcohol, and the abuse of drugs. These are lifestyle behaviours that one has personal control over but once they are adopted they are very difficult to eliminate. The smoking of cigarettes, cigars and pipes as well as the use of smokeless tobacco products such as snuff increase the risk of many diseases such as arteriolosclerosis. Alcohol addiction is another disease that is difficult to conquer. Alcohol is a depressant and can have negative effects on the body, mind and society. The abuse of drugs is a destructive habit that can result from legal or illegal drugs. Legal drugs are drugs bought over-the-counter such as drinks containing caffeine, tranquilizers or sedatives (depressants), analgesics (pain relievers), antidepressants and amphetamines (stimulants). Illicit drugs such as cocaine, marijuana, opiates such as heroin, psychedelics such as LSD, deliriants such as PCP and inhalants are examples of drugs that are commonly abused

Practicing safe sex

Sexually transmitted diseases are a major source of pain and suffering. HIV/AIDS is now a major problem and has reached epidemic proportions worldwide. Healthy lifestyles are the key to preventing common STDs such as gonorrhea, chlamydia, genital herpes, etc.

Adopting good safety habits

It is obvious that not all accidents can be prevented but it is possible to adopt habits that greatly reduce the risk of accidents. Fatalities from motor vehicle accidents can be significantly reduced by the regular use of seatbelts. The proper maintenance of play and work equipment can to a great extent reduce injury and casualties. Many children die each year from water-related accidents, which can be prevented by proper supervision and knowledge of cardiopulmonary resuscitation (CPR). Proper storage of firearms, use of smoke alarms, correct use of ladders, and the maintenance of cars, motorcycles and bicycles can also diminish accident risk.

Learn first aid

Several deaths could be prevented if people at emergency sites were able to administer first aid. First aid can prevent death; therefore it is imperative that all people should be familiar with CPR and the Heimlich maneuver.

Adopting good personal health behaviours

Several of the healthy lifestyles already mentioned are good examples of personal health habits. There are other simple personal health behaviours that are considered important for optimal health. These behaviours may be considered to be elementary because they are often taught at a very young age but still many adults fail to adopt these behaviours on a regular basis. Examples of these behaviours include regular brushing of teeth; care of ears; eyes and skin; proper sleeping habits; proper inoculations for disease prevention and good posture.

Seeking and complying with medical advice

Sometimes people purposely avoid seeking medical advice because they fear that something may be wrong. This attitude continues to persist even though there is evidence that a delay in treatment may greatly increase the risk of death from many diseases that can be cured or managed. It is vital for men to have regular testicular examinations and for women to perform regular self-examinations for breast cancer. It is also imperative that individuals are familiar with the most common medical problems in their culture. If these symptoms are present then one should seek medical help. Many deaths can be prevented if early warning signs are heeded. If medical advice is given then one should comply with this. It is not uncommon for people to stop their medication when their symptoms stop rather than using the full amount that is prescribed. If one has doubts about the medical advice given then one should obtain a second opinion.

Being an informed consumer

Many people purchase health services and products that are ineffective and often dangerous. The extensive advertising of quack health products often bombards us. It is important to investigate these products and services before committing oneself.

Protecting the environment

Unlike the lifestyle behaviours already mentioned, behaviours to help protect the environment may not have immediate wellness benefits. However, protecting the

environment may be one of the most important things humans can do over time to guarantee enhanced quality of living for future generations.

Managing time effectively

Working efficiently and making a significant contribution to society is central to the concept of wellness. Working efficiently requires one to be committed to time. A social contribution requires one to have time committed to family and friends. Similarly, every dimension of wellness requires a time commitment. A healthy lifestyle is one that allocates time efficiently to ensure that appropriate time is allocated to behaviours that contribute to each wellness dimension.

One healthy lifestyle that that is considered fundamental to wellness is participation is physical activity or exercise (Corbin & Lindsey, 1997). Physical activity is defined as a gross movement of sufficient intensity and duration to potentially increase aerobic or anaerobic capacity (Taylor, 2000).

2.7 The effects of physical inactivity

WHO (2000) declared that physical inactivity could have serious implications for people's health and that physical inactivity accounts for approximately 2 million fatalities per year in the world. WHO revealed that sedentary lifestyles could very well be among the 10 leading causes of death and disability in the world. Sedentary lifestyles increase all causes of mortality, double the risk of cardiovascular diseases, diabetes and obesity, and increase the risks of colon cancer, hypertension, osteoporosis, lipid disorders,

depression and anxiety. Approximately 60 to 85% of people globally lead sedentary lifestyles, making it one of the more serious problems of our time.

Physical inactivity along with increasing tobacco use and poor diet and nutrition are becoming an increasingly common part of today's lifestyle, leading to a rapid rise of diseases such as diabetes, cardiovascular diseases and obesity. Chronic diseases caused by these risk factors are now the leading cause of death in every part of the world except in Sub-Saharan Africa where AIDS is still the foremost problem. These chronic diseases are, for the most part, entirely preventable (WHO, 2000).

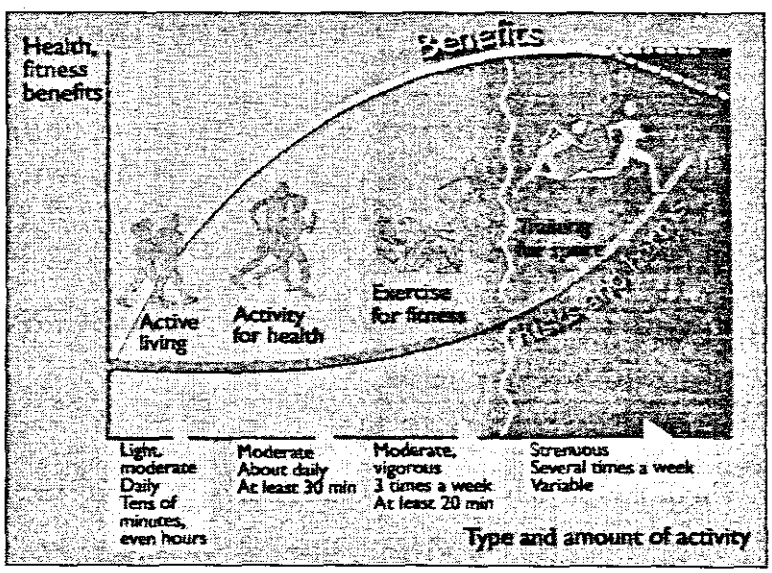

Figure 2 Type, amount and intensity of activity desired health and fitness benefits (WHO, 2003)

Figure 2 illustrates the type, amount and intensity of physical activity that one has to engage in to lead a healthy and productive life. Regular physical activity, active play and sports can be a means to achieving numerous health gains (WHO, 2000).

2.8 The Benefits of physical activity

The benefits of physical activity have been widely documented by authors such as Edlin and Golanty (1988); Donatelle *et a*l (1988); Katch and William (1993); Corbin and Lindsey (1997); Donatelle *et al* (1999); Fox (2000); Boutcher (2000); Biddle (2000); and Taylor (2000). The World Health Organization (2000) published the following benefits of physical activity:

1. It reduces the risk of dying prematurely.
2. It reduces the risk of dying from heart disease or stroke.
3. It reduces the risk of developing heart disease, colon cancer and type 2 diabetes.
4. It helps prevent or reduce hypertension.
5. It helps control weight and lowers the risk of becoming obese.
6. It helps prevent or reduce osteoporosis.
7. It reduces the risk of developing lower back pain and can help in the management of painful conditions like back pain or knee pain.
8. It helps build and maintain healthy bones, muscles and joints, and makes people with chronic, disabling conditions improve their stamina.
9. It promotes psychological well-being, and reduces stress, anxiety and depression.

10. It helps prevent or control risky behaviours, especially amongst children and young people, such as tobacco, alcohol or substance use, unhealthy diets and violence.

2.9 Studies conducted to investigate the relationship between physical activity and psychological well-being

Many studies have demonstrated the effect of physical activity on psychological well-being (Biddle, Fox & Boutcher (2000). Taylor (2000) examined the relationship between physical activity, anxiety and stress. He states that stress manifests itself in emotional states as well as in physiological, psychological and behavioural responses. The emotional state, anxiety, reflects negative cognitive appraisal such as worry, self-doubt and apprehension. He mentions that anxiety can be situational (state anxiety) or it can occur across many situations because the individual has a predisposition to being anxious (trait anxiety).

There is ample evidence to support the use of exercise for the reduction of trait anxiety over a period of time, and for the anxiety-reducing effects of a single exercise session (Taylor, 2000). Taylor (2000) mentions that exercise of an aerobic rhythmic type is most beneficial. These sentiments were shared by Scully, Kremer, Meade, Graham and Dudgeon (1998) and Simono (1991).

Another important study embarked upon, was to examine the relationship between physical activity and depression. Donatelle *et al* (1999) defined depression as a

disturbance in mood or a prolonged emotional state characterized by feelings of hopelessness, helplessness, lethargy and mental exhaustion.

Fox (2000) identified several studies in which the relationship between exercise and depression was examined. One study indicated that the odds ratio for depression over a period of nine years for those who remained low in activity was 1.22 and for those who became inactive was 1.61 against a baseline of high activity on both occasions (Camacho, Roberts, Lazarus, Kaplan & Cohen, 1991). Another study reported a dose relationship for subsequent incidence of depression in males over a 23-27 year period. Those who had expended 2500kcal or more per week experienced a 28% reduction in the risk of developing depression compared with those who expended less than 1000kcal per week. Those who expended between 1000kcal and 2499kcal per week had 17% reduction in the risk of developing depression (Paffenbarger, Lee & Leung, 1994). Over an eight year period women who engaged in little or no physical activity were twice as likely to develop depression than those who engaged in much or moderate physical activity (Farmer, Locke, Moscicki, Dannenberg, Larson & Radloff, 1998). Morgan (1997) asserts that exercise may be effective in preventing minor episodes of mental malaise from developing into more serious clinical disorders and he concludes that exercise is an effective treatment of mild depression.

Martinsen (1990) reviewed literature dealing with the effects of exercise and patients with depression and he found that such patients tended to be physically sedentary and

were characterized by a reduced physical work capacity compared to the general population.

Mutrie (2000) concurs that this epidemiological evidence does demonstrate that physical activity is associated with a decreased risk of developing depression. She states that both aerobic and resistance training may be used to treat moderate and severe depression.

Biddle (2000) examined several studies concerning emotion, mood and physical activity and he concluded that physical activity is consistently associated with positive affect and mood. He defined mood as the global set of affective states that we experience on a daily basis. He confirmed the existence of a positive relationship between physical activity and psychological well-being.

Scully *et al* (1998) and Edwards, Edwards and Basson (2004) assert that there is a positive link between exercise and self-esteem. In an attempt to better understand the term self-esteem, one must first acquire the meaning of the self. Edwards *et al* (2004) state that the self is a complex concept and is essentially socially constructed. Fox (2000) describes the self as a complex system of constructs. He adds that information relevant to the self is gathered and organized to form the self concept, which is based on its abilities, qualities, traits and the roles it performs.

Physical-self perception is a sub-set of global self-concept, which in turn may be viewed as a sub-set on global self-esteem, well-being, health and life (Fox, 1990, 2000). Fox (2000) defines self-esteem as a rating of how well the self is doing.

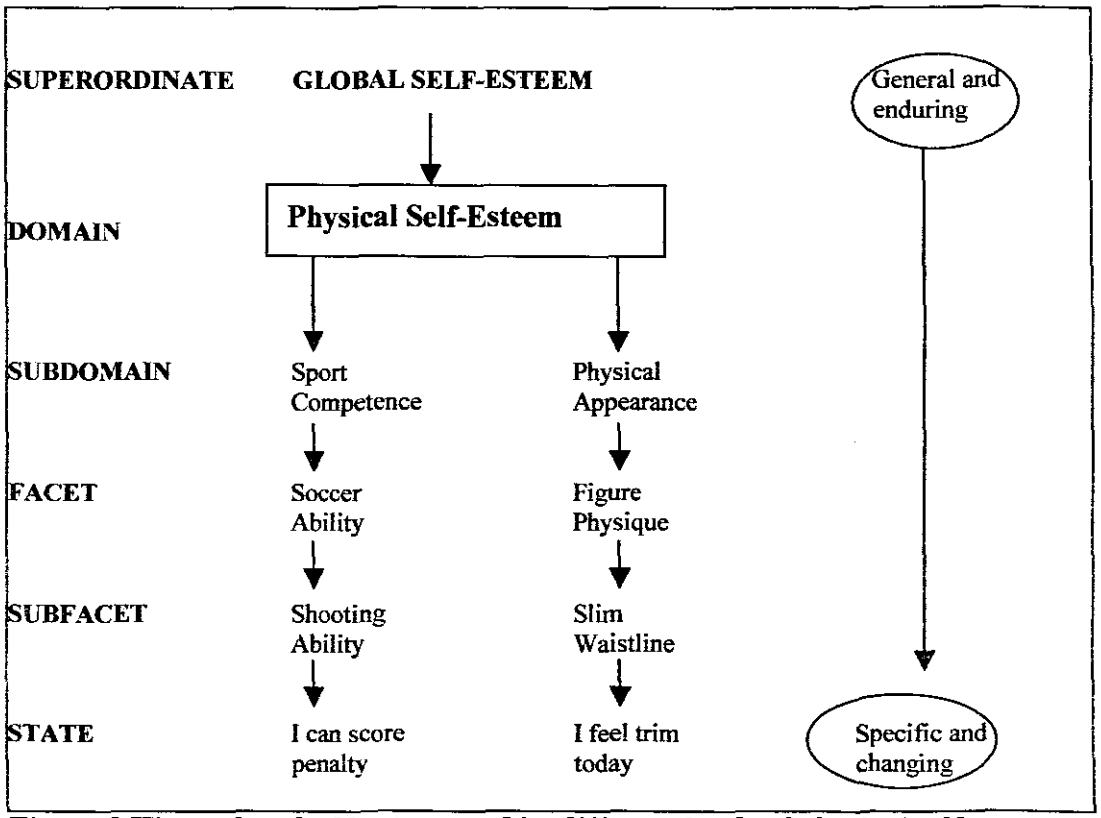

Figure 3 Hierarchy of self-esteem and its different levels of physical self-esteem (Fox, 1989)

Figure 3 depicts the structure of self-esteem as being hierarchical. This model suggests a testable mechanism by which perceptions at the lower level concerned with specific behaviours might influence more global perceptions. It illustrates how a whole range of perceptions might be measured, from the very specific and changeable to the more general and stable. Figure 3 shows a representation of this range within only two aspects of the physical domain, namely sports ability and physical appearance.

2.10 Fox's physical-self perception profile

Fox (1990) developed the Physical Self-Perception Profile (PSPP) that categorized self-perception into five categories. These include:

1. Sports competence (SPORT) refers to perceptions of sport and athletic ability, ability to learn sport skills and confidence in the sport environment.

2. Physical condition (CONDITION) refers to perceptions of level of physical condition, stamina and fitness, ability to maintain exercise, and confidence in the exercise and fitness setting.

3. Body attractiveness (BODY) refers to perceived attractiveness of figure or physique, ability to maintain an attractive body and confidence in appearance.

4. Physical self-worth (PSW) refers to feelings of happiness, satisfaction, pride, respect and confidence in the physical self.

5. Physical strength (STRENGTH) refers to perceived strength, muscle development and confidence in situations requiring strength.

Included in the PSPP is a Perceived Importance Scale that is used to assess the degree of meaning associated with the individual's sport competence, physical condition, body attractiveness and physical strength. Perceived importance is linked to self-perception and it has an impact on an individuals overall self-worth (Fox, 1990).

2.11 Ryff's scales of psychological well-being

An objective and standardized scale of psychological well-being was developed by Ryff (1989). Conway and Macleod (2002) described this scale as the best objective measure of psychological wellness. Ryff used the theories of developmental and clinical psychologists as the foundation to generate a multidimensional model of psychological well-being. These theories included Erikson's (1959) model of psychosocial stages, Buhler's (1935) basic life tendencies, Neugarten's (1973) personality changes, Moslow's (1968) conception of self-actualization, Allport's (1961) formulation of maturity, Rodger's (1961) description of the fully functioning person, and Jung's (1933) formulation of individuation.

Ryff's scale is composed of six distinct components (Ryff, 1989; Ryff & Keyes, 1995). These components include:

1. Self-acceptance – This refers to the positive evaluation of oneself and one's past life.

2. Personal growth – This refers to a sense of continued growth and development as a person.

3. Purpose in life – This refers to the belief that one's life is purposeful and meaningful.

4. Positive relations with others – This refers to the possession of quality relations with others.

5. Environmental mastery – This refers to the capacity to manage effectively one's life and surrounding world.

6. Autonomy – This refers to a sense of self-determination.

2.12 Summary

Chapter Two provides an overview of literature on the relationship between physical activity and psychological wellness. It provides a detailed discussion on the components of health and wellness, the benefits of exercise, the implications of physical inactivity and the findings of researchers at the forefront of this subject. The following chapter identifies the research methodology employed for this study.

Chapter Three: Research Methodology

3.1 Introduction

This chapter examines the methodology employed for participant selection, research design and data collection. It provides information on the type of assessment procedures utilized, the scoring of these assessments and the types of statistical procedures used in the analysis of the data collected.

3.2 Target population

Runners from various running clubs in the vicinity of the Zululand area were assessed. Resistance-oriented trainers were assessed from the surrounding gyms in the Empangeni and Richards Bay regions. A control group of non-exercisers was assessed and it consists of students from the University of Zululand.

3.3 Sampling

The sampling method employed for this study was haphazard or convenience sampling. The sample comprised of a total of 188 participants. This sample included 40 participants who engaged in regular road running, 40 participants who engaged in regular resistance training, and 108 non-exercisers (participants who indicated that they did not participate in exercise or sport).

3.4 Research design

The research design adopted for this study was correlational in nature. This is a type of research where two or more variables are measured but not manipulated and the relationship between these variables is assessed (Harris, 1995).

3.5 Data collection

Data was collected via a questionnaire. The questionnaire comprised three parts. The first part of the questionnaire contained questions regarding biographical data and it examined whether participants exercised or not. If the participants confirmed that they exercised then they were required to fill in the remainder of the first page of the questionnaire. The remaining questions on the first page of the questionnaire were concerned with the type, frequency, duration and the intensity of the activity being performed (See Appendix A).

The second part of the questionnaire was made up of Ryff's Scales of Psychological Well-Being (1989). This scale consisted of six dimensions. These dimensions included: autonomy, personal growth, environmental mastery, positive relations with others, purpose in life and self-acceptance. This scale consisted of a total of eighteen items that were based on a standardized three item form (See Appendix B).

Dimensions	Items		
Autonomy	1 (-)	7 (+)	13 (+)
Environmental mastery	2 (+)	8 (+)	14 (-)
Personal growth	3 (+)	9 (-)	15 (+)
Positive relations with others	4 (-)	10 (+)	16 (-)
Purpose in life	5 (-)	11 (+)	17 (-)
Self-acceptance	6 (+)	12 (+)	18 (-)

Table 1 Dimensions of PWB and the scoring patterns

From the above table it is clearly demonstrated that for each dimension of psychological well-being there are three items. It is noticeable that a positive or negative sign accompanies every item. This sign simply implies that the items with the positive sign are positively scored and the items with the negative sign are negatively scored, meaning that the scores are reversed.

The third part of the questionnaire is made up of The Physical Self-Perception Profile (1990). The Physical Self-Perception Profile consists of 5 subscales. These subscales include: sports competence, physical condition, body attractiveness, physical strength and physical self-worth. Each of these subscales contains 6 items. The 30 items are divided into two parts and the participants were required to answer the part, which was relevant to them (See Appendix C).

The Perceived Importance Profile was designed to accompany the Physical Self-Perception Profile. The Perceived Importance Profile is used to assess the participants perceived importance on the Physical Self-Perception Profile subscales.

Subscales	**Items**					
Sport competence (SPORT)	1	6r	11	16r	21	26r
Physical condition (CONDITION)	2	7r	12	17	22r	27r
Body attractiveness (BODY)	3r	8	13	18r	23	28r
Physical self-worth (PSW)	4r	9r	14r	19	24r	29
Physical strength (STRENGTH)	5r	10	15	20r	25	30r

Table 2 Subscales of the PSPP and the scoring of items

The above table illustrates the 5 subscales of The Physical Self-Perception Profile (PSPP) and the 6 items that accompany each of these subscales. The items with "r" beside it indicate that the scoring for these items must be reversed.

Subscales	**Items**	
Sport importance	1r	5
Condition importance	2	6r
Body importance	3r	7
Strength importance	4	8r

Table 3 PIP subscales and scoring of items

Table 3 depicts the subscales of the Perceived Importance Profile (PIP). From the table one can gauge that there are four subscales and that each of these subscales has two items that accompany it. The "r" beside some items indicates that the scoring for these items must be reversed. The Perceived Importance Profile was designed to accompany The Physical Self-Perception Profile.

3.6 Data analysis

The independent variables for the study consisted of biographical variables of age, gender, occupation, language, as well as the type, frequency, duration, and intensity of the chosen main type of sport or exercise activity,. The dependent variables consisted of the dimensions of wellness from Ryff's Scales of Psychological Well-Being (1989) and all the subscales from The Physical Self-Perception Profile, which included the subscales from The Perceived Importance Profile (Fox, 1990). Once all the data was collected and recorded, a SPSS statistical program was used to analyze the data. The SPSS statistical program included Pearson Correlations, Analysis of Variance (ANOVA) and Tukey HSD tests. Harris (1995) argues that if there are only two groups/ means then a significant F can be interpreted only one way. However, if there are more than two means, as in the case of this study, in order to make inferences about which specific mean or means differ from which other means, it is imperative that another statistical procedure should be performed. This procedure is called a post hoc comparison and the Tukey HSD is an example of such a procedure.

3.7 Summary

Chapter three explores the methods utilized for participant selection, data collection and data analysis. It examines the assessment procedures employed and the scoring methods of these assessments. Chapter four provides an analytical and comprehensive discussion of the results acquired from the data.

Chapter Four: Data results and analysis

4.1 Introduction

The subsequent chapter consists of a presentation and evaluation of the data accumulated for the study. The data were analyzed, summarized and presented in a tabular form. The tables were accompanied by discussions of the results and the significant findings. The statistical tool employed for the data analysis in this chapter was an SPSS statistical program that comprised the ANOVA and Tukey HSD.

4.2 Results of data analysis

In the results tables which follow, the dependent variables from Ryff's (1989) scales of psychological well-being and Fox's (1990) physical self-perception profile were coded as follows: autonomy (a), personal growth (pg), environmental mastery (em), purpose in life (pl), positive relations with others (pr), self-acceptance (sa), sport competence (sp), conditioning (co), body attractiveness (bo), strength (st), physical self-worth (psw), sport importance (spi), conditioning importance (coi), body importance (boi) and strength importance (sti). The single (*) and double asterisks indicate significant findings at five and one percent level of significance respectively. Non-significant findings are indicates by NS.

	a	pg	em	pl	pr	sa	sp	co	bo	st	psw	spi	coi	boi	sti
Exercise (N=80)	13.9	15.4	14	14	13.2	14.4	15.1	15.8	15.4	15	15.7	5.8	6.1	6.2	6.2
Control (N=108)	12.5	13.6	12	9.6	10	12.2	13.3	14.4	15.1	15.5	19.9	5.2	5.2	5	5.6
Gym (N=40)	13.8	15.5	14	14	12	14.2	14.6	15.4	15.7	14.9	15.8	5.5	6	6.4	6.3
Runners (N=40)	13.9	15.3	13.9	13.9	14.3	14.6	15.6	16.2	15	15.2	15.6	6.1	6.3	6.1	6.2

Table1 Mean scores of regular exercisers (resistance trainers and runners) and non-exercisers on dimensions of psychological well-being and scales physical self-perception

Table 1 illustrates the mean scores on the dimensions of the psychological well-being (PWB) and the physical self-perception profile (PSPP) scales (40 resistance trainers, 40 runners and a control group of 108 non-exercisers). Analysis of variance (ANOVA) of this data supported the hypothesis by revealing that exercisers scored significantly higher than the control group on thirteen of the fifteen dimensions of the psychological well-being and the physical self-perception profile scales. The higher mean scores of non-exercisers on the strength and physical self-worth dimensions could be accounted for by

their over-estimation in their perception of these variables or due to the underestimation of exercisers in their perception of these variables.

The specific F ratio for the various dimensions and scales were as follows: autonomy (4.0**), personal growth (9.4*), environmental mastery (7.7**), purpose in life (45.1*), positive relations with others (25.3*), self acceptance (12.9*), sport competence (5.4NS), conditioning (3.6**), body attractiveness (0.3NS), strength (0.4NS), physical self-worth (0.8NS), sport importance (5.2*), conditioning importance (8.5*), body importance (13.9*) and strength importance (3.0**). Table 1 depicts that the mean scores of two of the four insignificant comparisons (body attractiveness and sport competence) were in the anticipated direction of exercisers scoring higher than the control group. Taking into cognizance the general pattern of significant trends, the unanticipated means of non-exercisers on the strength and physical self-worth dimensions could be simply due to the overestimation of non-exercisers and/or the underestimation of exercisers in their perceptions of these variables.

Further analysis of variance, using Tukey HSD multiple comparisons between the different exercise types, portrayed that resistance trainers scored significantly higher than the control group on the following variables: personal growth, environmental mastery, purpose in life, positive relations with others, self acceptance, conditioning importance and body importance. Runners scored significantly higher than the control group on the following variables: personal growth, environmental mastery, purpose in life, positive

relations with others, self acceptance, sport, conditioning, sport importance, conditioning importance and body importance.

Comparisons between the two types of physical activities indicated that there were no significant findings. Therefore the secondary hypotheses had to be rejected. These insignificant results could be attributed to the specificity of the questionarre, which simply asked participants to only indicate their main type of exercise or sport. It could have been possible that the participants participated in both types of sport. It was thought that more significant results would be yielded if the items on the questionnaire regarding the type of physical activity/exercise that the participants engaged in were more specific.

The higher mean scores of the runners as compared to resistance trainers on the strength variable could be attributed to their perception that strength was an important factor in their training. However, the higher mean scores of resistance trainers on the body and body importance variables could imply that they perceive the physical appearance of the body as being more important than the strength factor.

4.3 Correlational matrix of Psychological well-being (PWB) and Physical self-perception (PSPP) dimensions and scales

	a	pg	em	pl	pr	sa	sp	co	bo	st	psw	spi	coi	boi	sti
a															
pg	.40**														
em	.40**	.32**													
pl	.12	.44**	.26*												
pr	.29**	.25*	.33**	.23*											
sa	.26*	.29**	.50**	.26*	.18										
sp	-.09	-.15	-.09	-.14	.06	.02									
co	-.15	-.21	-.07	-.12	.03	-.05	.78**								
bo	-.51	-.12	-.06	-.03	.07	-.10	.72**	.62**							
st	-.07	-.08	-.11	-.05	.10	.02	.77**	.62**	.76**						
psw	-.06	-.05	.01	-.01	.03	-.03	.73**	.67**	.74**	.66**					
spi	.03	-.14	.11	-.15	.17	.14	.27*	.16	.19	.21	.11				
coi	.18	.09	.21	.00	.29**	.12	.04	.17	-.04	.03	-.08	.40**			
boi	.24*	.10	.34**	.09	.12	.25*	.17	.10	.19	.25*	.14	.49**	.49**		
sti	.18	-.04	.22	.14	.19	.13	.08	.13	.09	.12	.10	.57**	.57**	.65**	

Table 2 Correlational matrix of psychological well-being and physical self-perception dimensions

Table 2 depicts that there are a total of hundred and five possible correlations between the subscales and dimensions of the two measures. There were seventy-eight positive correlations, thirty five of which were significant. .

	Number of items	Positive correlations		Significant correlations		Negative correlations	
PWB	15	15	100%	13	86.7%	0	0%
PSPP	36	34	94.4%	18	50%	1	2.8%
Both	54	29	53.7%	4	7.4%	26	48.1%
Total	105	78		35		27	

Table 3 Positive, significant and negative correlations of psychological well-being and physical self-perception dimensions and scales

Table 3 illustrates the number of positive, significant and negative correlations between the two measures. From the table it can be observed that the items on PWB correlated strongly with each other. The percentage for the positive correlations across the items on the PWB was 100% and 86.7% of these items reached significance. The items on the PSPP were strongly correlated with each other. The percentage of positive correlations across the items on the PSPP was 94.4% with 50% of these items reaching significance. There was a weaker correlation across the items from both measures. The percentage of positive correlations across items from both measures was 53.7% with 7.4% of these items reaching significance. None of the twenty-seven negative correlations were significant to warrant further investigation. This table provided evidence that the two measures were indeed positively correlated.

4.4 Summary

This chapter presented the results from the data collected. It highlighted the statistical procedure used to analyze this data and the results from the data collected were displayed in the form of tables. These tables were accompanied by discussions of the results and significant findings. Chapter Five presents the conclusions and recommendations of the study.

Chapter Five

Recommendations and conclusion

5.1 Introduction

The following chapter provides an overview of the research conducted. It provides a summary of how the research was conducted, the results obtained and the recommendations made with regard to exercise/physical activity as means promoting psychological well-being.

5.2 Recommendations

The value of various forms of physical activity, exercise and sport for the promotion of psychological well-being has been well documented in numerous research and interventions (Edlin and Golanty, 1988; Donatelle *et al* 1988; Ryff & Keyes 1989; Fox 1990; Martinsen 1990; Katch and William 1993; Paffenbarger, Lee & Leung 1994; Ryff & Keyes 1995; Corbin & Lindsey 1997; Scully, Kremer, Meade, Graham., & Dudgeon 1998; Donatelle *et al*, 1999; Fox 2000; Biddle, 2000; Boutcher 2000; Mutrie, 2000;Taylor, 2000; WHO, 2003; Edwards, Edwards, & Basson , 2004). Therefore, it is imperative that exercise/physical activity should be implemented in conjunction with medical treatment or as an alternative form of treatment for tribulations concerned with psychological well-being.

5.3 Conclusion

The present research was embarked upon to investigate the relationship between different types of regular physical activities, namely resistance training and aerobic exercise, as compared to non-exercisers (control group). This was achieved by compiling a questionnaire which consisted of the components of the scales of psychological well-being and the dimensions of physical self-perception which were standardized by Ryff (1989) and Fox (1990), respectively.

Analysis of the data revealed that exercisers scored significantly higher than the control group on thirteen of the fifteen dimensions of the psychological well-being and the physical self-perception profile scales. Comparisons between the different exercise types, portrayed that resistance trainers scored significantly higher than the control group on the following variables: personal growth, environmental mastery, purpose in life, positive relations with others, self acceptance, conditioning importance and body importance. Runners scored significantly higher than the control group on the following variables: personal growth, environmental mastery, purpose in life, positive relations with others, self acceptance, sport, conditioning, sport importance, conditioning importance and body importance.

Finally, the components from the two scales were correlated with each other and the outcome was that two scales were moderately correlated. This was due to the notion that physical self-perception was a subset of global self-esteem which in turn was subset of psychological well-being.

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Appendix A

Biographical Data Questionnaire

Name:

Age:

Gender:

Home Language:

Occupation:

Contact Number:

Please put a circle around the answer that applies to you.

1. Do you exercise and/or take part in sport?
   Circle either the "yes" or "no" that follows. **YES** **NO**

2. If the above answer was no, please ignore the following questions. If yes, please answer the questions that follow.

2.1 Please write your main type of exercise or sport?

_____

2.2 Circle how many times per week you exercise/practice sport.

1 **2** **3** **4** **5** **6** **7**

2.3 How many minutes does your typical exercise/sport session last?
Please write your answer in minutes: _____ minutes

2.4 Circle the intensity of your average exercise/sport session on a scale of 1 to 10 where 1 is very light and 10 is very hard.

1 **2** **3** **4** **5** **6** **7** **8** **9** **10**

Appendix B

Ryff's Scale of Psychological Well-being

The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers.

Circle the number that best describes your present agreement or disagreement with each statement	Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
2. I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
3. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
4. I live life one day at a time and don't really think about the future.	1	2	3	4	5	6
5. Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6
6. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
7. I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
8. For me, life has been a continuous process of learning, changing and growth.	1	2	3	4	5	6
9. The demands of everyday life often get me down.	1	2	3	4	5	6
10. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
11. People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6
12. I like most aspects of my personality.	1	2	3	4	5	6
13. I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
14. I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
15. I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
16. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
17. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
18. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6

Appendix C

The Physical Self-Perception Profile

WHAT AM I LIKE?

These are statements which allow people to describe themselves. There are no right or wrong answers since people differ a lot.

First, decide which one of the two statements best describes you.

Then, go to that side of the statement and check if it is just "sort of true" or "really true" FOR YOU.

	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
			EXAMPLE				
	☐	☐	Some people are very competitive	BUT	Others are not quite so competitive	☒	☐

REMEMBER to check only ONE of the four boxes

1.	☐	☐	Some people feel that they are not very good when it comes to playing sports	BUT	Others feel that they are really good at just about every sport	☐	☐
2.	☐	☐	Some people are not very confident about their level of physical conditioning and fitness	BUT	Others always feel confident that they maintain excellent conditioning and fitness	☐	☐
3.	☐	☐	Some people feel that compared to most, they have an attractive body	BUT	Others feel that compared to most, their body is not quite so attractive	☐	☐
4.	☐	☐	Some people feel that they are physically stronger than most people of their sex	BUT	Others feel that they lack physical strength compared to most others of their sex	☐	☐
5.	☐	☐	Some people feel extremely proud of who they are and what they can do physically	BUT	Others are sometimes not quite so proud of who they are physically	☐	☐
6.	☐	☐	Some people feel that they are among the best when it comes to athletic ability	BUT	Others feel that they are not among the most able when it comes to athletics	☐	☐

	Really True for Me	Sort of True for Me			Sort of True for Me	Really True for Me
7.	☐	☐	Some people make certain they take part in some form of regular vigorous physical exercise	BUT Others don't often manage to keep up regular vigorous physical exercise	☐	☐
8.	☐	☐	Some people feel that they have difficulty maintaining an attractive body	BUT Others feel that they are easily able to keep their bodies looking attractive	☐	☐
9.	☐	☐	Some people feel that their muscles are much stronger than most others of their sex	BUT Others feel that on the whole their muscles are not quite so strong as most others of their sex	☐	☐
10.	☐	☐	Some people are sometimes not so happy with the way they are or what they can do physically	BUT Others always feel happy about the kind of person they are physically	☐	☐
11.	☐	☐	Some people are not quite so confident when it comes to taking part in sports activities	BUT Others are among the most confident when it comes to taking part in sports activities	☐	☐
12.	☐	☐	Some people do not usually have a high level of stamina and fitness	BUT Others always maintain a high level of stamina and fitness	☐	☐
13.	☐	☐	Some people feel embarrassed by their bodies when it comes to wearing few clothes	BUT Others do not feel embarrassed by their bodies when it comes wearing few clothes	☐	☐
14.	☐	☐	When it comes to situations requiring strength some people are one of the first to step forward	BUT When it comes to situations requiring strength some people are one of the last to step forward	☐	☐
15.	☐	☐	When it comes to the physical side of themselves some people do not feel very confident	BUT Others seem to have a real sense of confidence in the physical side of themselves	☐	☐
16.	☐	☐	Some people feel that they are always one of the best when it comes to joining in sports activities	BUT Others feel that they are not one of the best when it comes to joining in sports activities	☐	☐

	Really True for Me	Sort of True for Me			Sort of True for Me	Really True for Me
17.	☐	☐	Some people tend to feel a little uneasy in fitness and exercise settings	BUT	Others feel confident and at ease at all times in fitness and exercise settings	☐ ☐
18.	☐	☐	Some people feel that they are often admired because their physique or figure is considered attractive	BUT	Others rarely feel that they receive admiration for the way their body looks	☐ ☐
19.	☐	☐	Some people tend to lack confidence when it comes to their physical strength	BUT	Others are extremely confident when it comes to their physical strength	☐ ☐
20.	☐	☐	Some people always have a really positive feeling about the physical side of themselves	BUT	Others sometimes do not feel positive about the physical side of themselves	☐ ☐
21.	☐	☐	Some people are sometimes a little slower than most when it comes to learning new skills in a sports situation	BUT	Others have always seemed to be among the quickest when it comes to learning new sports skills	☐ ☐
22.	☐	☐	Some people feel extremely confident about their ability to maintain regular exercise and physical condition	BUT	Others don't feel quite so confident about their ability to maintain regular exercise and physical condition	☐ ☐
23.	☐	☐	Some people feel that compared to most, their bodies do not look in the best of shape	BUT	Others feel that compared to most their bodies always look in excellent physical shape	☐ ☐
24.	☐	☐	Some people feel that they are very strong and have well developed muscles compared to most people	BUT	Others feel that they are not so strong and their muscles are not very well developed	☐ ☐
25.	☐	☐	Some people wish that they could have more respect for their physical selves	BUT	Others always have great respect for their physical selves	☐ ☐
26.	☐	☐	Given the chance, some people are always one of the first to join in sports activities	BUT	Other people sometimes hold back and are not usually among the first to join in sports	☐ ☐

	Really True for Me	Sort of True for Me			Sort of True for Me	Really True for Me
27.	☐	☐	Some people feel that compared to most they always maintain a high level of physical conditioning	BUT	Others feel that compared to most their level of physical conditioning is not usually so high	☐	☐
28.	☐	☐	Some people are extremely confident about the appearance of their body	BUT	Others are a little self-conscious about the appearance of their bodies	☐	☐
29.	☐	☐	Some people feel that they are not as good as most at dealing with situations requiring physical strength	BUT	Others feel that they are among the best at dealing with situations which require physical strength	☐	☐
30.	☐	☐	Some people feel extremely satisfied with the kind of person they are physically	BUT	Others sometimes feel a little dissatisfied with their physical selves	☐	☐

HOW IMPORTANT ARE THINGS TO YOU?

	Really True for Me	Sort of True for Me			Sort of True for Me	Really True for Me
1.	☐	☐	Some people feel that being good at sports is vitally important to them	BUT	Others feel that being good at sports is not so important to them	☐ ☐
2.	☐	☐	Some people do not feel that maintaining a high level of physical conditioning is very important to them	BUT	Others feel that maintaining a high level of physical conditioning is extremely important to them	☐ ☐
3.	☐	☐	Some people believe that having an attractive physique or figure is vitally important to them	BUT	Others believe that having an attractive physique or figure is not all that important in their lives	☐ ☐
4.	☐	☐	Some people believe that being physically strong is not so important to them	BUT	Others feel that it is extremely important to them to be physically strong	☐ ☐
5.	☐	☐	Some people feel that having very good sports ability and skill is not so important to them	BUT	Others feel that having a high level of sports ability is really important to them	☐ ☐
6.	☐	☐	Some people feel that maintaining regular vigorous exercise is vitally important to them	BUT	Others feel that keeping up regular vigorous exercise is not of prime importance to them	☐ ☐
7.	☐	☐	Some people do not feel it so important to them to spend a lot of time and effort maintaining an attractive body	BUT	Others think that it is vitally important to spend time and effort maintaining an attractive body	☐ ☐
8.	☐	☐	Some people feel that being strong and having well developed/toned muscles is vitally important to them	BUT	Others feel that being strong and having well developed/toned muscles is not so important to them	☐ ☐