THE IMPACT OF A SCHOOL-BASED PHYSICAL ACTIVITY INTERVENTION ON LEARNERS' HEALTH BEHAVIOUR

by

SIPHAMANDLA E. NYAWOSE

A thesis submitted in fulfilment of the requirements for a Masters degree in Sports Science in the Discipline of Biokinetics, Exercise and Leisure Sciences at the University of KwaZulu-Natal

Supervisor: **Dr Rowena Naidoo**

Date submitted: **December 2014**

DECLARATION

I declare that "**The impact of a school-based physical activity intervention on learners' health behaviour**" is my own work, that it has not been submitted, or part of it, for any degree or examination at any other University, and that all sources I have used or quoted have been indicated and acknowledged by means of complete references.

Siphamandla E. Nyawose

Signature: _____ December 2014

Witness

Name: _____

Signature: _____

DEDICATION

To my mom, you have always been a pillar of my strength, thank you for support, love and patience.

ACKNOWLEDGEMENTS

I wish to place on record my sincere thank you and appreciation to the following individuals and institutions that have made this study possible.

Dr. R. Naidoo from the discipline of Biokinetics, exercise and leisure sciences, for her valuable guidance, support and thorough supervision of this study.

To all participants who so willingly participated in the study with total commit, especially parents who sacrificed their time to come to the school to attend focus group.

A special thank you to Mrs N. Mbhele who is the vice principal and Mr T. Makhanya Life Orientation head of department, for warm welcome to the school, I truly felt at home.

A special thank you to Mrs R.M. Gordon who is a school health nurse from KwaZulu-Natal Department of Health, for granting us permission to conduct research in the selected schools.

To my girlfriend Zingisa, for her love and undivided support.

A special thank you to fellow masters students Jed Davidson, Khulekani Dlamini and Zingisa Nqwena, and all other people who help during data collection, you made this study a success, and I was not going to be able to collect data without your help.

Finally, to everybody who supported me.

ABSTRACT

Introduction: *Five percent of South African youth are obese, 20% overweight, 13% stunted and eight percent is underweight. Physical activity among children and adolescents is believed to be insufficient and low levels of physical activity seem to persist from childhood into adulthood with this increasing prevalence of obesity and overweight among children and adolescents, development of interventions to promote PA in children and adolescents is a priority (van Sluijs et al., 2007).*

The purpose of this study was to evaluate the impact of a school-based PA intervention on learners' health behaviour.

Methods: *This study was a quasi experimental, non-equivalent groups design. An intervention programme and assessment pre- and post-intervention was conducted. Two schools (one control and one experimental) from the Clermont Township in KwaZulu-Natal were purposively selected by KwaZulu-Natal Department of Health. Grade six learners (n=129), their parents (n=19), school principals (n=2) and educators (n=21) participated in this study. Learners completed a battery of tests and completed a physical activity questionnaire for data collection. Principals and educators were interviewed to determine their perspectives on physical activity teaching and learning. Parents participated in focus group sessions. The intervention was implemented in the experimental school for the four month intervention period by the educators.*

Discussion and conclusions: *Study findings indicate that a school-based PA intervention programme can increase learners' fitness levels.*

The study showed that the introduction of various methods of physical activity within the schools' existing curriculum, working with educators and parents can improve physical fitness and healthy eating habits in the learners without disrupting normal learning and teaching in the school. Furthermore, this study a school-based physical activity intervention can improve physical activity awareness among teachers, learners and parents.

Key words: *Physical activity, school-based intervention, nutrition*

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

1.1 INTRODUCTION

The prevalence of overweight and obesity has increased substantially over the past three decades (WHO, 2012). Weight problems in childhood and adolescence are very common in Western countries with overweight rates estimated at 17% – 25% in West-Europe, Australia and the United States (Jansen et al., 2012). An estimated 170 million children aged less than 18 globally are estimated to be overweight (WHO, 2012).

In the United States over the past 20 years, the level of obesity and overweight has radically increased. This is more evident in children among ages of 6 to 11 and adolescents among ages of 12 - 19 years (Pate et al., 2006). In 2002 the World Health reports identified a number of life style risk factors such as obesity, physical inactivity, diet related factors, tobacco, alcohol and illicit drugs (WHO, 2012). These lifestyle factors have considerable effects on morbidity and mortality (Jepson, Harris, Platt, & Tannahil, 2010).

Due to this rapid prevalence increase and the associated health consequences, obesity is considered one of the most serious health challenges. Raised body mass index is a major risk factor for diseases such as cardiovascular disease, type II diabetes and kidney cancer (WHO, 2012). In many countries physical inactivity levels are increasing with main inferences for general health of people worldwide and for the prevalence of non-communicable diseases such as raised blood pressure, raised blood sugar weight and overweight (WHO, 2012).

Physical inactivity had been identified as the fourth risk factor for mortality contributing to 6% of deaths globally; this follows high blood pressure with 13%, tobacco use with nine percent and high blood glucose with six percent (WHO, 2014). Physical inactivity is estimated as being the main root of breast and colon cancer burden for approximately 21% - 25%, 27% of diabetes and approximately 30% of ischemic heart disease burden (WHO, 2014). Additionally, physical inactivity increases the risk of short life expectancy (Lee et al., 2012). Insufficiently active people have a 20% - 30% increased risk of death compared to people who engage in a minimum of 30 minutes of moderate intensity physical activity (PA) on most days

of the week (WHO, 2014). Furthermore, 3.2 million people die each year because they are not active enough (WHO, 2014).

Obesity among US children and adolescents has tripled in the past three decades (Ogden, Caroll, Curtin, Lamb, & Flegal, 2010). Physical inactivity in children and adolescents can result in premature deaths, cardiovascular diseases and many other detrimental results. Insufficient low levels of PA among children and adolescents seem to persist into adulthood. This makes physical inactivity among young people a risk factor for cardiovascular diseases, cancer and osteoporosis later in life (Van Sluijs, McMinn, & Griffin, 2007).

1.2 BACKGROUND

South Africa faces many current and future challenges, among them non-communicable diseases with more than two in every three adult women and one in every three adult men being either overweight or obese (HAKSA, 2014). There has been an increase in the prevalence of obesity in South Africa (van der Merwe & Pepper, 2006). Additionally, South Africa together with countries such as China and Brazil are particularly affected and have an increased rate of obesity across all economic levels and age groups (Kruger, Puoane, Senekal, & van der Merwe, 2005).

A study among 554 economically active South African adults showed that 56.4% white men were overweight or obese, 49.3% black men and 74.6% black women were overweight or obese. Additionally 47.5% men and 66% women of mixed ancestry were reported to be overweight or obese and 42.2% white women were overweight or obese (Kruger, et al., 2005) . South Africa is undergoing a rapid epidemiological transition and has the highest prevalence of obesity in sub-Saharan Africa with obesity prevalence of 31.8% in women (Micklesfield et al., 2013). However, being overweight and obese is not only in adults but also in South African children. A study to determine the prevalence of overweight and obesity of five primary schools randomly selected within each province. Findings showed trends of obesity and overweight within varying socio-economic categories. (Armstrong, Lambert, Sharwood, & Lambert, 2006).

Furthermore, 5% of South African youth are obese, 20% are classified as being overweight, 13% classified as being stunted and 8% classified been as underweight (Van Sluijs, et al., 2007).

The national youth risk behavior survey conducted in 2002 and 2008 reported that less than half of South African youth surveyed participate in enough PA (Amosun, Reddy, Kambaran, & Omardien, 2007).

The opportunity for children to be physically active during schools hours is rapidly decreasing in selected schools (Naidoo, Coopoo, Lambert, & Draper, 2009). There is a downward trend in physical educational and PA participation in South African schools; less than two-thirds of children participate in weekly PE classes (HAKSA, 2014). Healthy active kids report that schools with more resources seem to have better sport participation compared to schools with less resources, 66% of children from urban areas play sport, whereas less than 50% in rural areas play sport (HAKSA, 2014).

However, there is limited literature on the promotion of PA in schools using PE or any other intervention (Pate, et al., 2006). A major goal of promoting PA and PE among learners is the development of a lifelong physical active lifestyle. This has become a necessity because schools have been unable to provide sufficient time and resources for learners to meet all the objectives of standard PE (Pate, et al., 2006).

Promoting PE in schools includes three strategies, namely curriculum-based, environmental-based and policy-based interventions (Timperio, Salmon, & Ball, 2004). Combined intervention strategies that incorporate a “whole school” approach, including curriculum, policy and environmental strategies were far more effective than those that only incorporated a curriculum approach (Timperio, et al., 2004).

1.3 STATEMENT OF THE PROBLEM

Obesity and overweight has become a major public health problem in South Africa. This is as a result of physical inactivity and unhealthy dietary patterns (Amosun, et al., 2007). In South Africa, the prevalence of physical inactivity has been estimated between 43% - 49% among 15 years and older (Micklesfield et al., 2014). Physical

activity amongst learners in schools has declined as a result of less time given to physical education and an increase in time watching television (Naidoo & Coopoo, 2012).

1.4 PURPOSE OF THE STUDY

To determine the impact of a school-based PA and family intervention on learners' health behaviour in selected township schools in KwaZulu-Natal, pre- and post-intervention.

1.5 OBJECTIVES OF THE STUDY

The following objectives of the study were identified pre- and post-intervention:

- To determine the knowledge , attitudes and practices of grade six learners
- To determine the physical fitness levels of grade six learners
- To determine the effectiveness of a four month PA and family intervention on grade six learners PA behaviour
- To determine the knowledge, attitudes and practices of grade six educators towards PA
- To determine the perspectives of grade six's parents towards PA and nutrition.

1.6 HYPOTHESIS

Hypothesis: A school-based PA intervention programme can increase learners' fitness levels.

Null Hypothesis: A school-based PA intervention programme cannot increase learners' fitness levels.

1.7 RATIONALE

With the prevalence of childhood obesity and the escalating health problems among children and adolescents, there is a huge concern and strong attribution of childhood obesity, health problems with inactive and sedentary life-style (WHO, 2009). There is an urgent need for the early introduction of PA programmes to children and adolescents. Low levels of PA and sedentary life style have been associated with high blood pressure, overweight and obesity among children as young as 12 years of age and this physical inactivity is also linked with increases in type II diabetes (Timperio, et al., 2004). Physical activity programmes are needed to halt and reverse the crisis. Researchers believe that mixed interventions were most effective in PA participation (Jepson, et al., 2010).

1.8 SIGNIFICANCE OF THE STUDY

The study would contribute to the body of knowledge providing effective measures to promote physical fitness and PA in school setting. The study would form a basis for future school-based physical interventions in schools involving parents. The study would contribute to effective preventive measures to fight children and adolescent overweight and obesity.

1.9 DEFINITIONS OF TERMS

In this section, definitions of terms used in this study will be clarified as interpreted in this study.

Agility: The ability to change the body's position, and requires a combination of balance, coordination, speed, reflexes, and strength.

Balance: The ability to stay upright or stay in control of body movement.

Battery: A series of tests or test items.

Blood pressure: The force exerted upon the walls of the blood vessels by the blood.

Body Composition: Concerns the percentages of muscle, fat and body tissues.

Cardiovascular: Of or pertaining to or involving the heart and blood vessels.

Chronic diseases: Diseases such as coronary artery disease, diabetes and hypertension occurring for a long duration or recurring frequently.

Coordination: The ability to move two or more body parts under control, smoothly and efficiently.

Coronary Artery Disease: A disorder in which the cardiac muscle receives an inadequate amount of blood due to a disruption of its blood supply.

Diabetes: A disease resulting from insulin deficiency in which there is an excessive amount of glucose in the blood.

Exercise: performance of physical exertion for improvement of health or correction of physical deformity.

Explosive Power: The ability to gather maximum strength in a very short period of time.

Fitness tests: Measures used to determine an individual's ability to perform specific activities involving the muscles and systems of the body.

Flexibility: The ability of a joint or a series of joints to move through a pain-free range of motion.

Hypertension: Also referred to as high blood pressure. A pathology that results in higher resting blood pressure due to genetic or lifestyle inefficiencies.

Intervention: A set of activities designed to change the nutrition and physical activity behaviour of learners.

Mean: The arithmetic average of a set of scores.

Muscular Endurance: The ability of a muscle or group of muscles to sustain repeated contractions against a resistance for an extended period of time.

Muscular strength: the ability of a muscle to exert a maximal or near maximal force against an object.

Non-communicable Disease: A non-communicable disease is a disease which is not infectious. Such diseases may result from genetic or lifestyle factors. e.g. hypertension, diabetes, asthma.

Nutrition: The intake of food, considered in relation to the body's dietary needs.

Obesity: The condition of being extremely overweight.

Overweight: An individual's body composition with more body fat than is optimally healthy.

Physical activity: Is any task/movement that causes the body to work harder than normal.

Physical fitness: the body's ability to function efficiently and effectively, using muscular strength, muscular endurance, cardiovascular endurance, power and flexibility.

Reliability: The degree to which a measure is consistent and unchanged over a period of time.

Sample: Any subgroup of a population.

Sedentary: tending to spend to spend much time seated; somewhat inactive.

Speed: is the ability to move quickly across the ground or move limbs rapidly.

Strength: the ability to exert a force against a resistance.

Validity: The degree to which interpretations of test scores lead to correct conclusions.

1.10 ABBREVIATIONS

In this section, abbreviations of terms used in this study will be clarified

BMI	Body mass index
cm	Centimetres
DoE	Department of Education
DoH	Department of Health
kg	Kilograms
LO	Life Orientation
min	Minutes
n	Sample size
PA	Physical activity
PE	Physical education
WHO	World Health Organisation
KZN	KwaZulu-Natal
IPEN	International Physical Activity and Environment Network

CHAPTER TWO

2. LITERATURE REVIEW

This chapter will present literature related to school health promotion, particularly intervention programmes. The chapter comprises of the following sections:

SECTION A: The benefits of physical activity and its determinants

SECTION B: Interventions promote physical activity in schools

SECTION C: Barriers to promoting physical activity and school health services

SECTION A

2.1 BENEFITS OF PHYSICAL ACTIVITY

Physical activity has substantial health benefit (De Meester, Van Lenthe, Spittaels, Lien, & De Bourdeaudhuij, 2009). An active lifestyle and moderate to high fitness levels greatly reduce the risk of mortality from chronic degenerative diseases such as coronary artery disease and diabetes, physical active lifestyle reduces the risk of developing type II diabetes. Moreover, most physicians agreed that PA is an important part of treatment for both type I and type II diabetes (Wilmore, Costill, & Kenney, 2008).

Participation in regular PA for children and adolescents provide physical and mental health benefit (Biddle, Gorely, & Stensel, 2004). Regular PA can protect against weight gain among children (Atlantis, Barnes, & Singh, 2006). Physical activity is a significant and amendable factor influencing an individuals' health (De Meester, et al., 2009). Obesity and many chronic diseases such as cancer and cardiovascular diseases are directly related to sedentary lifestyle or physical inactivity(De Meester, et al., 2009).

2.2 PHYSICAL INACTIVITY AND ITS DETRIMENTAL EFFECTS

Prevalence of overweight and obesity is caused by more time spent in sedentary behaviours such as television viewing (Bennett et al., 2006). South African children spend a large proportion of their time in sedentary behaviour; children between 10 and 17 watch an average of 3 hours of television a day and may reach to 3.5 hours over weekends (HAKSA, 2014). Studies reported that the alarming rise in overweight, obesity and type II diabetes children and adolescents from Australia and United States is strongly attributed to decline in PA (Booth et al., 2003; Timperio, et al., 2004). As a result of physical inactivity, the prevalence of childhood obesity and other health problems increased in many countries and that is expected to persist (Van Sluijs, et al., 2007).

Physical inactivity is among the three major lifestyle risk factors which predict major diseases like cardiovascular disease, diabetes, cancer and lung disease (HAKSA,

2010). There is an urgent need for effective PA programmes to reduce unprecedented global increase in the prevalence of childhood overweight and obesity (Salmon, Booth, Phongsavan, Murphy, & A, 2007).

2.3 SOCIO-ECONOMIC AND SOCIO-ECOLOGICAL DETERMINANTS OF PHYSICAL ACTIVITY/INACTIVITY

Socio-economic and socio-ecological status have influence towards children and adolescents levels of PA in schools and outside school (La Torre et al., 2006). Physical education (PE) classes were not dispersed equally across socio-economic status (McVeigh, Norris, & de Wet, 2004). There was less frequent PE in disadvantaged primary schools (HAKSA, 2010). Less than one third of schools from disadvantaged communities have regularly scheduled PE compared to three quarters in the more advantaged schools (McVeigh, et al., 2004).

Children from disadvantaged backgrounds are less likely to participate in recreational activities (McVeigh, et al., 2004). Physical activity can be impacted by social networks, family and friends (McVeigh, et al., 2004). Studies reported that educational levels of parents are determinants for children's PA, higher participation in PA is evident in all children with highly educated parents (McMurray et al., 2012).

Families with high socio-economic status consider PA useful both in preventing chronic degenerative and psychological development of adolescents (McMurray, et al., 2012). The influence of parents' level of PA with their children, unemployed parents and uneducated parents is associated with parents that are not well informed and aware of benefits of engaging in PA, in most cases this reflects in their children (McMurray, et al., 2012).

The prevalence of non-communicable diseases including type II diabetes is reported to be growing in South Africa (Mayosi et al., 2009). In schools situated in low-income communities there was complex mix of over and under nutrition and concerning levels of physical inactivity in children and youth. The burden of these diseases is reported to be growing in South Africa in both urban and rural low–income communities (Draper, de Villiers, et al., 2010). There are barriers affecting promotion of healthy lifestyles in schools in low-income communities (Temple, Steyn, Mayburgh, & Nel, 2005).These barriers include limited resources, the absence of

policy relating to healthy lifestyles and the availability of inexpensive foods of low nutritive value either available in tuck shops or street vendors (Temple, et al., 2005)

Overall, population-ageing, rapid unplanned urbanisation and globalisation influence global health and results in unhealthy environments and behaviours (WHO, 2012). The increasing prevalence of non-communicable diseases and their risk factors had become a global issue affecting nearly both low and middle income countries (WHO, 2012). Low and middle income countries are beginning to suffer the double burden of communicable and non-communicable diseases and health systems in these countries now have to cope with the additional costs of treating both (WHO, 2012).

SECTION B

2.4 INTERVENTIONS TO PROMOTE PHYSICAL ACTIVITY IN SCHOOLS

Various types of interventions are used to promote PA in children. These include classes of PE and health, healthy eating and exercise, minimising television and computer use and increasing PA (Van Sluijs, et al., 2007). Additionally interventions that are school-based and involve the community and families can increase PA in adolescents (Van Sluijs, et al., 2007). Majority of young people's PA occur outside school, growing recognition of the importance of community-based programmes is reported and the involvement of the community at all levels (Cale & Harris, 2006).

2.4.1 SCHOOL-BASED PHYSICAL ACTIVITY: PHYSICAL ACTIVITY INTERVENTION ONLY

There is reasonable evidence of effectiveness of intervention that comprise school-based curriculum activities. The most effective interventions are those activities including educational materials and curriculum that increase PA in everyday life of children like lunch, PE classes and recess (Jepson, et al., 2010). School-based interventions generally lead to short term improvements in PA levels and this short term improvements in PA levels by school-based interventions were limited to school related PA with no conclusive transfer to general leisure time PA (De Meester, et al., 2009).

A 12-week health educational programme which was implemented in PE lessons in a junior high school resulted in positive changes in PA habits but this positive PA could not be sustained four to six weeks after the end of the intervention (De Meester, et al., 2009). De Meester et al investigated educator-led PA programme versus a traditional self-led PA programme in inactive teenage girls. At the end of six month intervention, both groups showed significant improvements (De Meester, et al., 2009).

Quasi-experimental review relationships of academic performance and selected determinants to participation in school-based PA including PE, free school PA and school sports (Trudeau & Shephard, 2008). Physical activity and components of mental health, including self-esteem, emotional well-being and spirituality are strongly related with adolescents' health (Nelson & Gordon, 2006). Study concluded

that improved cognitive functioning in children is strongly associated with PA and particularly middle school students aged 11-13 and younger. (Sibley & Etnier, 2003).

In a study to assess the effect of environmental changes to the school playgrounds on children's PA, a significant increase was reported in moderately measured to vigorous intensity PA (Timperio, et al., 2004). Children that underwent the intervention that incorporated school environmental and policy-changes, curriculum based programme and family programmes showed increases in PA. In the three-year follow-up these trends of increased PA was reported, however increased PA was observed among boys but no effect among girls (Timperio, et al., 2004). Interventions which focused more on the school setting, proved to be the most effective to promote PA among learners and none of interventions that included a summer programme or intensive after school programme resulted in significant increases in PA among learners, (Timperio, et al., 2004).

The researcher believes that school-based PA and family interventions are favourable strategies to raise awareness of PA and improve physical fitness among children and adolescents. Similarly, Ornelas, Parreira & Ayala (2007) concluded that strategies to promote PA among adolescents should focus on increasing levels of family cohesion and parental engagement.

2.4.2 PHYSICAL ACTIVITY AND NUTRITION

A non-randomised controlled 10-month study involving eight primary schools, (four intervention and four control), on 589 children aged 7-11 years (Gorely, Nevill, Morris, Stensel, & Nevill, 2009b). The primary outcome measures of the study measured PA and fruit and vegetable consumption. After 10 months of intervention, the intervention schools significantly increased their total time in moderate to vigorous PA by nine minutes per day as opposed to the control schools who decreased their total time in moderate to vigorous PA by ten minutes per day (Gorely, et al., 2009b). The intervention schools showed improvement and changes in PA levels and body composition as opposed to the control schools. However, the consumption of vegetables and fruits, the intervention had little or no effect.

A school-based cross sectional study conducted in Saudi Arabia during 2009 to 2010, utilised random selection in a multistage stratified sampling technique.

Participants comprised a total of 2980 secondary school leaners, 1401 males and 1507 females aged between ages of 14 to 19 years (Al-Hazzaa, Abahussain, Al-Sobayel, Qahwaji, & Musaiger, 2011). The study measurements included weight, height, sedentary behaviours, PA and dietary habits. Results showed that 84% males and 91.2% females of Saudi adolescents spent more than two hours on screen time daily and half of the males and less than a quarter of females did not meet daily PA guidelines. Majority of adolescents did not have a daily intake of breakfast, fruit, vegetables and milk and females were more sedentary (Al-Hazzaa, et al., 2011).

2.4.3 FAMILY BASED INTERVENTIONS

The most effective non-curricula school interventions included the provision of equipment to guide and monitor television use, video games and computer usage by children thus increasing time for PA (Jepson, et al., 2010). In this type of intervention it was inevitable that parents support was needed to guide, support and encourage children to participate in PA including those implemented during school breaks like the painting of school playgrounds (Jepson, et al., 2010).

Parents are regarded as the most important influence on health behaviours among children (Story, Kaphingst, & French, 2006). Children's nutrition and PA behaviours are influenced by home-related factors such as feeding styles, availability and accessibility of healthy food products. The nature of the home environment that stimulates PA includes, parental support and encouragement on healthy living lifestyle; parent's health behaviours and general parental styles could influence children's health behaviours (Birch & Ventura, 2009). Golan and Crow reported that a 12-week programme with families of children with low fitness levels and signs of being overweight, with parent involvement showed increased activity and fitness levels (Golan & Crow, 2004). However, there was lack of evidence to support claims that involving parents in school-based interventions was effective (Van Lippevelde et al., 2012).

Parents have a significant influence on childrens' and adolescents' health. However, there was a growing trend of physical inactivity in United States among adolescents, especially girls (Ornelas, Parreira, & Ayala, 2007). A study examined whether the relationships between parental influences and adolescent PA are affected by gender.

Furthermore, tested whether these relationships were mediated by adolescents' self-esteem and depression. Grade 6-12 adolescents underwent a national longitudinal study that comprised of two phases. Phase one comprised of in-home interviews with a random sample of 20.745 students. Approximately 200 students from high school and middle school pair were included in the sample excluding disable students. In phase two participants from phase one were re-interviewed a year later. Results showed that 14.736 adolescents participated in both in-home phases, 79% response rates of phase one and 88% response rates of phase two (Ornelas, et al., 2007). The study concluded that family cohesion, parent child communication and parental engagement positively predicted moderate to vigorous PA per week for both genders one year later (Ornelas, et al., 2007).

2.4.4 NUTRITIONAL HABITS

In 1999, a study to evaluate the impact of a school-based interdisciplinary health behaviour intervention on diet and PA was conducted among children in grades four and five. "The Eat well and keep moving" programme was introduced and taught by classroom educators during mathematics, science, languages and arts classes for the period of two years. This programme was effective in improving the dietary intake in students and reducing television viewing (Gortmaker et al., 1999).

Many children from different backgrounds habitually consume a poor nutritional diet (Pomerleau, Lock, McKee, & Altmann, 2004). Almost 90% of food sold in school stores were high in fat and/or sugar, which led to speculations about disadvantaged communities such as those found in Africa (Wildely et al., 2000).

A study by (Neumark-Sztainer, French, Hannan, Story, & Fulkerson, 2005) reported inconsistent dietary intake by adolescents with national recommendations. Adolescents were reported to have a high intake of foods with high saturated fat, total fat, soft drinks but low intake of vegetables, fruits, fiber and foods rich in calcium.

A South African study with a sample size of 476 from 14 selected schools representing different ethnic groups and socioeconomic status, reported that 22% of children did not have breakfast before school (Norman, Nelia, Neil, & Johanna, 2006). Furthermore, in another South African study, 15% to 20% of children did not

have anything to eat or drink before they attended school in the morning (Walker, Walker, Jone, & Ncongwane, 1981). Hence, there is a necessity to educate children and parents about the essentials and importance of eating a healthy diet (Norman, et al., 2006).

In South Africa, obesity in children exists with stunted children and at an early age deficiency of proper nutrition is reported, where 22% girls and 17% boys primary school children are either overweight and obese (HAKSA, 2007). Twenty-three percent of girls and 10% of boys aged 10 to 14 were overweight or obese and 27% of girls and 9% of boys aged 15 to 17 were overweight and obese (HAKSA, 2007).

A study conducted in Cape Town, South Africa to determine whether school children can differentiate between healthy and unhealthy food, found that 80% of children ate during a recorded time with majority buying from school; a minority brought food from home; and a large percent of children brought unhealthy food to school (Norman, et al., 2006).

In South Africa, 58% of youth reported consuming fresh fruit and vegetables four times or more days per week (HAKSA, 2007). Most children could differentiate between healthy food and unhealthy food. However, school tuck shops and school vendors sold food like cheese curls, sweets, fried cakes and fizzy cool drinks. Sandwiches were less popular in the list at the school tuck shop and vendors. Majority of students bought food items at school. Majority of these foods comprise energy-dense items that were high in fat and sugars (Temple, et al., 2005).

However, an increase in eating a balanced diet in school children, including eating fruits and vegetables as per daily required servings has been reported. The Healthy Active Kids report card, 2014 reported an increased percentage of fruit and vegetables with more than 70% of 15 to 24 year olds having moderate to high fruit and vegetable scores. Furthermore, the National Schools Nutrition Programme helps children from disadvantage backgrounds to eat a balanced food diet (HAKSA, 2014).

SECTION C

2.5 BARRIERS TO PROMOTING PHYSICAL ACTIVITY AND SCHOOL HEALTH SERVICES IN SOUTH AFRICA

Physical education is a minor component of the Life Orientation (LO) curriculum. It has been allocated less time in curriculum and only a small percentage of educators are involved (Draper, de Kock, et al., 2010). Educators have pointed out different reasons as limitations in promoting PA, children had become less active and this has been evident alongside undernourished learners who rely on the school feeding scheme for proper nutrition. The lack of facilities, space constrains has been identified as a limitation, in schools based in Alexandra, Gauteng (Draper, de Kock, et al., 2010).

(Mohlabi, Van Aswagen, & Mokwena, 2010) believed that the National Department of Health should adopt the stages model of policy development, where the health promoting schools and the school health services policy guidelines, which are currently separate documents, are merged and launched as one compact document that will clarify that school health is a vital component within the health promoting schools initiative. Since South Africa was fairly new in the health promoting initiative, there had been lack of clear understanding of the initiative to school health services which led to problems in its implementation (Mohlabi, et al., 2010). Reduced quality standards of school health was inevitable as a result of implementation problems (Mohlabi, et al., 2010).

The researcher supports the literature that the Department of Health and Department of Education should work together to create awareness and challenge people's attitudes and perception of PA in school setting and community setting.

Overall, the literature reported on various types of interventions that may promote PA among learners. Additionally, the benefits of PA among learners included improved physical fitness, which is reported to improve lifespan. However, there were barriers to promoting PA in school environment. The researcher believes that the school setting is the best environment to promote PA among learners. However, family and community engagement play a large role to sustain benefits gained from school setting interventions.

CHAPTER THREE

3. METHODOLOGY

3.1 RESEARCH DESIGN

This was a quasi-experimental, non-equivalent groups design with a four-month intervention programme and assessment pre- and post-intervention. The design involves a non-randomised pre-selection of groups with groups been unequal. The study proceeds in a similar way to other experimental research designs, with a variable being compared between different groups, over period of time (Thomas, Nelson, & Silverman, 2005). The intervention school is part of the health promoting schools programme however, they have not received physical education intervention on this programme.

3.2 SELECTION SAMPLE

The project was in collaboration with the KwaZulu Natal (KZN) Department of Health (DoH). Permission was granted by the DoH to conduct this study at selected schools as part of the Health Promoting Schools programme.

The DoH purposively selected two primary schools in the low-socio-economic township area in Clermont, KZN, South Africa. All grade six learners, school principals and selected educators from these schools were requested to participate in this study. Schools were randomly divided into a control or intervention school. A sample of 129 grade six learners and the school principals volunteered to participate in the study. Learners (n=74) from a total of 138 grade six learners, the school principal, educators (n=21) and grade six learners parents (n=19) from the intervention school volunteered to participate in this study. The control school comprised a sample of 55 learners from a total of 61 grade six learners and the school principal. Parents and educators from the control school were excluded from the study.

For eligibility for participation in the study, the following criteria were adhered to:

Inclusion criteria

- Learners that were in grade six
- Educators that taught Life Orientation (LO)/Physical Education (PE) in the grade six curriculum
- Parents/ guardians of grade six learners

Exclusion criteria

- Learners that were not in grade six
- Educators that did not teach LO/PE in the grade six curriculum
- Parents/ guardians of non-grade six learners
- Learners with medical conditions where physical activity (PA) was not advised

3.3 INSTRUMENTATION

Fieldwork at the schools employed both quantitative and qualitative methods of assessment. Quantitative assessments included the use of questionnaires.

In addition, the learners participated in a battery of fitness tests to establish baseline data on fitness levels.

Fitness tests:

Selected tests from the Eurofit physical fitness test battery were used. Tests were validated and are reliable for testing school age children (Eurofit, 1993). The following tests were completed by learners pre- and post-intervention (Table 3.1):

Table3.1: Battery of fitness tests

Component	Test	Objective	Equipment
Strength and endurance	30 sec Sit up	Sit up test is an abdominal strength test conducted to assess abdominal muscular endurance.	Floor mat/ flat ground, stopwatch and partner to hold feet
Explosive strength	Standing broad jump	This test is conducted to assess explosive leg power	Tape measure, take off line clearly marked
Flexibility	Sit and reach	This test assesses lower back and hamstrings flexibility.	Floor mat/ flat ground, stopwatch and partner to hold feet
Speed and agility	10 x 5 meter shuttle run	This test measures running speed and agility.	Stopwatch, measuring tape, marker cones and flat surface
Body mass index	BMI	Is calculated using height and weight and it can be used to measure level of obesity.	Scale
Coordination	Plate tapping	Tests speed of limb movement.	Table, discs (20cm diameter), rectang (30cm x 20cm)
Balance	Flamingo balance test	This test measures single leg balance	Stopwatch, metal beam 50cm long, 5 high and 3cm wide

Qualitative assessments were determined by observation of the learners during lunch-breaks pre- during and post-intervention; individual semi-structured interviews (Appendix five) with selected educators and focus group sessions (Appendix six) with parents were conducted by the researcher.

A 45-minute semi-structured interview with the grade six LO educators regarding their knowledge, attitudes and teaching methodologies with regard to PA pre- and post-intervention were conducted.

Parents attended four one-hour focus group sessions facilitated by the researcher. Sessions were conducted at the school, once a month. The monthly focus group sessions with parents was designed to empower grade six learners' parents with the knowledge about the impact of PA on their children. Sessions also determined parents' knowledge and attitudes towards PA and the importance of their children to participate in physical activities. Discussions promoting PA amongst children were encouraged as well as barriers preventing PA. Based on responses, educational material for the parents was developed.

The intervention programme was monitored on a weekly basis

3.4 PROCEDURES AND PROTOCOL

Once ethical clearance was granted by the University's Biomedical Research Ethics Committee, the researcher randomly divided the schools into either the control or intervention (experimental) school.

The learners completed a questionnaire (Appendix one) based on their PA knowledge, attitudes and practices pre- and post-intervention. The learners' questionnaire was also translated into IsiZulu, as English was their secondary language. The educators completed a PA questionnaire (Appendix two) pre- and post-intervention aimed to assess behaviours, knowledge, perceptions, and practices regarding PA in teachers in primary school teachers. Questionnaire have been validated by the University of Cape Town and utilised in rural communities in Limpopo and in Alexandra Township in Gauteng (Draper et al. 2010). The educators completed the questionnaire to determine knowledge and practices regarding PA. Responses from questionnaire were used to compile key points of the educators' workshop. The situational analysis questionnaire (Appendix three) aimed to analyse the school environment. The International Physical Activity and Environment Network (IPEN) questionnaire (Appendix four) aimed to analyse the school neighbourhood, services available as well as the surrounding neighbourhood. These questionnaires were completed by principals.

Assessments were conducted at the schools, during normal school hours and under direct supervision from educators, the researcher and sport scientists.

3.4.1 PHASES OF THE STUDY

Pre- and post-intervention data was collected from both schools. The intervention school underwent the intervention programme for four months comprising of six phases. The control group underwent similar phases; however excluded the intervention programme and focus groups. The parents in the control school did not attend focus groups. The intervention programme was implemented in the control school after phase six of the following protocol is completed.

Pre-intervention

Phase 1: This was the introduction of the project to the schools; it comprised initial visits to the schools to introduce the project to the principals, educators and parents. The researcher met with principals and educators to discuss the study. A date was set to administer questionnaires and the fitness tests to learners pre-intervention. The principals were requested by the researcher to inform the grade six parents during the term parents meeting regarding the study. The researcher presented at the meeting to elaborate on the study as well as to recruit participants.

Phase 2: Consent forms were handed out to educators (Appendix seven) and principals to read and sign before participating in the study. Assent forms (Appendix eight) were handed out to learners to read and sign and their parents had to provide consent for their child's participation. Additionally, the parental consent forms (Appendix nine) were handed out to learners for their parent's participation in the focus groups. The researcher conducted semi-structured interviews with the selected educators.

Phase 3: The principals had to complete the situational analysis and the IPEN. The researcher administered the learner questionnaire to grade six learners pre-intervention. Educators completed a questionnaire regarding their practice and attitude towards PA and physical PE.

Phase 4: Learners completed the battery of physical fitness test battery.

Intervention

Phase 5: The intervention programme based on the responses from the interviews with educators. The researcher conducted four one-hour PA and basic nutrition

workshops with educators pre- and during the first two weeks of the intervention. Teachers' workshops were held on Wednesdays at 13:30 and/or Fridays after school. The educators implemented the activities learnt from the workshops. Monthly parents' focus group sessions commenced. The researcher monitored the intervention programme on a weekly basis.

Post-intervention

Phase 6: Learners completed the questionnaires and battery of fitness tests. The researcher conducted interviews with the selected educators. The intervention was thereafter offered to the control school.

3.5 DATA COLLECTION

The researcher was responsible for the data collection from the selected schools. The researcher administered the questionnaires and fitness tests with trained sports scientists. Selected tests from the Eurofit physical fitness test battery were used; BMI, sit and reach, 10 x 5m shuttle, standing broad jump and sit up and flamingo balance.

Testing procedures were conducted in the open space within the school premises. Each test was standardised and all equipment was calibrated before tests were performed. The researcher ensured that the test procedures and administration were alike throughout the testing, to promote validity and reliability. The same measuring instruments were used in both schools throughout the testing programme.

3.6 INTERVENTION PROGRAMME

The intervention programme was designed to introduce various methods of PA and healthy nutritional habits within the PE lessons in the school curriculum, to the learners by the educators. Educators were trained to lead intervention activities. Activities included warm-up games, circuit and fun group games. Innovative teaching methods and learning strategies were employed. The intervention programme looked to establish a health promoting environment in the school through physically active and healthy learners, educators and principals.

The key strategy was to integrate the intervention into the school curriculum thus, the intervention would be implemented by teachers. In turn, learners were introduced to

various forms of PA for four months. This intervention design would enable implementation and continuity after the study.

Grade six parents attended focus group sessions. Parents attended four sessions, each which discussed a new topic. Parents were encouraged to voice their knowledge and beliefs regarding PA. Discussion was encouraged.

- The first session discussed parents, knowledge, practices, attitudes and beliefs regarding PA.
- Physical activity of children and parents, including its benefits and importance was the topic of the second session. Additionally, parents were encouraged to express and share their beliefs and practices regarding PA as well as learn new physical activities and exercises.
- Healthy food and dietary guidelines were introduced in the third session of the focus group. Parents began to understand of balanced diet. The issue of "pocket" money for children and preparing lunch boxes for children were also discussed.

3.7 STATISTICAL ANALYSIS

Statistical analyses used in this study included descriptive statistics including means and standard deviations. Frequencies were represented in tables or graphs. Chi-square goodness-of-fit-test: a univariate test, used on a categorical variable to test whether any of the response options were selected significantly more/less often that the others. Under the null hypothesis, it is assumed that all responses were equally selected.

Wilcoxon Signed Ranks test: A non-parametric test used to test, in this study, whether the average value was significantly different from a value of 3 (the central score). This is applied to Likert scale questions. It was also used as an alternative to the paired t-test.

Chi-square test of independence: Used on cross-tabulations to determine whether a significant relationship exists between the two variables represented in the cross-

tabulation. Interviews and focus group sessions were coded and common themes were expressed.

3.8 ETHICAL CONSIDERATIONS

Ethical clearance from the University of KwaZulu Natal's Biomedical Research Ethical Committee was granted for this study (BE339/13). Informed consent or assent forms were completed and signed by all participants in the study.

Permission to conduct the study in selected schools was granted by the DoH (Appendix ten).

Informed consent applied to all participants. Apart from the time they were being transcribed, the recordings of interviews, along with the questionnaires, are kept in the possession of the research team, and will be destroyed five years after the completion of this study by incineration.

Children completed assent forms as well as their parents/guardians signed informed consent forms.

The benefits of this research were highlighted to participants. They were assured that their participation in this study is voluntary, and that it is greatly appreciated. It was made clear that participating in this study, or the choice *not* to be involved in this study, will not affect their future academic and/or professional career in any way.

Each participant was allocated a number and alphabetical code to ensure that confidentiality and anonymity was maintained. Questionnaires, information sheets, assent and consent forms have been translated into isiZulu.

Although the majority of these ethical issues were addressed in the consent forms provided for participants, these were also be reiterated verbally where possible.

3.9 DESCRIPTION OF THE FITNESS TESTS PROTOCOLS

3.9.1 TESTING ENVIRONMENT

Testing procedures were conducted in the open space within the school premises. Each test was standardised and all equipment was calibrated before tests were performed. The researcher ensured that the test procedures and administration were alike throughout the testing, to promote validity and reliability. The same measuring instruments were used in both schools throughout the testing programme.

The questionnaire was completed by all learners in the classroom prior to fitness testing. Learners were encouraged to wear suitable/comfortable clothing during testing. Learners completed a circuit comprising seven various stations (Figure 3.1), with each station measuring a particular fitness component. The fitness tests were described and demonstrations were held at each station prior to testing. The reason for performing each test and the correct technique was explained to the learners to ensure test reliability. Learners were also familiarised with the equipment used for testing.

The completed tests results were recorded (Appendix eleven) by the researcher and or experienced sport scientists. The researcher stressed the importance of accuracy when recording fitness tests results.

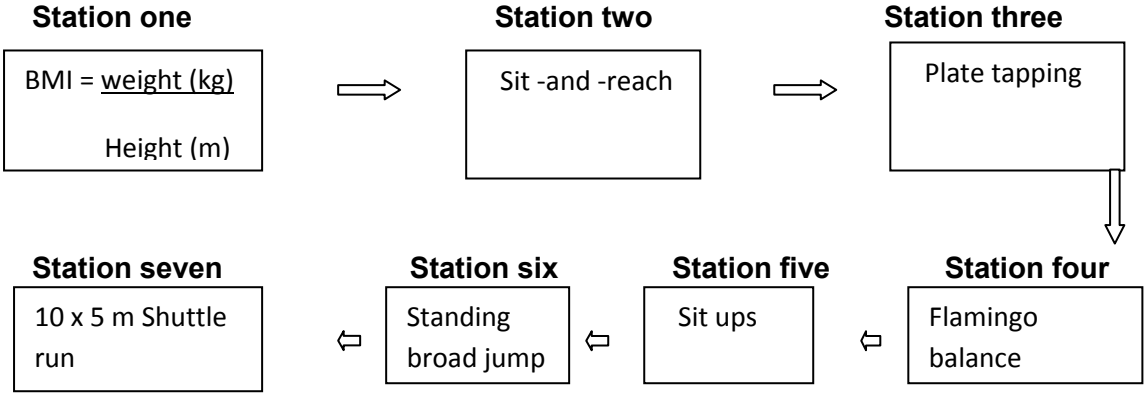


Figure 3.1: Circuit of fitness components

In this section the testing methods, techniques and protocols will be described for each test.

3.9.2 Standing height (Eurofit, 1993)

- **Purpose**

To record the height of each learner.

- **Equipment**

Nagata digital height and weight scale.

Figure 3.2: Nagata digital scale

- **Method**

The height of each learner (barefoot) was measured. The learner stood straight facing the Nagata digital scale, with arms hanging naturally by the sides. The height determined was at the highest point of the head, looking straight ahead.

Figure 3.3: Height measurement

- **Interpretation**

The height was recorded in centimetres (cm) to the nearest 0.5 cm.

3.9.3 Body weight (Eurofit, 1993)

- **Purpose**

To record the weight of each learner.

- **Equipment**

A Nagata digital height and weight scale (refer to figure 3.2)

- **Method**

The scale registers at zero before the learner steps on. The weight of each learner was measured without wearing shoes. The learner stands vertically on the platform of the scale.

Figure 3.4: Weight measurement

- **Interpretation**

The weight was recorded in kilograms (kg) to the nearest 0.5 kg.

3.9.4 Body mass index (Eurofit, 1993)

- **Purpose**

To provide an indication of the relationship of weight to height.

- **Method**

The body mass index (BMI) was calculating with the following equation:

$$BMI = \frac{\text{Weight (kg)}}{\text{Height}^2\ (m^2)}$$

- **Interpretation**

According to the BMI and age chart, if the BMI score was higher than the 85th percentile or 95th percentile lines, then the boy/girl's result was in the overweight and obese thresholds.

Any values of BMI between the 5th and 85th percentiles were considered to be within the normal range for a male/female child, not overweight or underweight.

3.9.5 Sit-and-reach (Eurofit, 1993)

- **Purpose**

The sit-and-reach test was designed to measure hip and trunk flexion and the ability to stretch the hamstring and lower back muscles.

- **Equipment**

The measuring box was 33 cm high with an overhang of 50 cm.

- **Method**

Each learner sat on the floor with legs out straight ahead. Feet (shoes off) were placed with the soles flat against the box, shoulder-width apart. Both knees were held flat against the floor by the tester to prevent knees from bending. With hands on top of each other and palms facing down, the learner reached forward along the measuring line as far as possible. The furthest position that was reached by the learner and held for at least three seconds was recorded.

Figure 3.5: Starting position for sit-and-reach

- **Interpretation**

The furthest point reached by the finger-tips of both hands was the score recorded. The measurement was recorded in centimetres, with 15 cm coinciding with the toes of the learner. If the finger-tips reach unevenly, the hand reaching the shorter

distance was recorded. The learner repeated the test twice, with the highest reading of the two (rounded to the nearest centimetre) recorded as the final score.

Figure 3.6: End position for sit-and-reach test

3.9.6 Plate tapping (Eurofit, 1993)

- **Purpose**

To assess the speed and the coordination of upper limb movement.

- **Equipment**

Rectangle (30 x 20 cm) with discs (20 cm diameter) and stopwatch.

- **Method**

If possible, the table height should be adjusted so that the learner is standing comfortably in front of the discs. The two discs were placed with their centres 60 cm apart on the table. The rectangle was placed equidistant between both discs. The non-preferred hand was placed on the rectangle. The learner moved the preferred hand back and forth between the discs over the hand in the middle as quickly as possible. This action was repeated for 25 full cycles (50 taps).

- **Interpretation**

The learner moved the preferred hand back and forth between the discs over the hand in the middle as quickly as possible. This action was repeated for 25 full cycles

(50 taps). Time using a stopwatch was kept and at the end of the 25th cycle the timer stop the watch and that the score in seconds.

Figure 3.7: Plate tapping

3.9.7 Flamingo balance (Eurofit, 1993)

- **Purpose**

To assess the ability to balance successfully on a single leg.

- **Equipment**

Stopwatch, metal beam 50cm long, 5cm high and 3cm wide (the beam is stabilised by two supports at each end, and should have a non-slip surface).

- **Method**

The learner stood on the beam without shoes. He/she maintained their balance by holding the tester's hand. While balancing on the preferred leg, the free leg was flexed at the knee and the foot of this leg held close to the buttocks. When the learner let go of the tester's hand, the tester started the stopwatch.

❖ **Interpretation**

The tester started the watch as the subject let go. The tester stopped the stopwatch each time the learner lost their balance (either by falling off the beam or letting go of the foot being held). Start over, again timing until the learner lost their balance. The number of falls in 60 seconds of balancing was counted. If there were more than 15 falls in the first 30 seconds, the test would have been terminated and a score of zero would be given.

Figure 3.8: Flamingo balance

3.9.8 30-second sit-ups (Eurofit, 1993)

❖ **Purpose**

To provide an indication of trunk muscle strength.

❖ **Equipment**

Stopwatch.

❖ **Method**

The learner was positioned with his/her knees bent at 90º, feet flat on the ground, hands behind head and both shoulder blades touching the floor. A helper sat opposite the learner and held his/her feet on the ground. The learner sat-up and touched both knees with his/her elbows then returned to the starting position. The protocol required that the feet remained on the ground throughout the testing.

Figure 3.9: Starting position for sit- ups

Figure 3.10: End position for sit-ups

- **Interpretation**

This motion from the starting position was repeated as many times as possible during 30 seconds. If the elbows did not touch the knees, the shoulder blades did not touch the ground or the hands were moved from behind the head, the repetition was not counted.

3.9.9 Standing broad jump (Eurofit, 1993)

- **Purpose**

To measure the explosive power of the legs.

- **Equipment**

Tape measure, non-slip floor for take-off, soft landing area preferred.

- **Method**

The learner stood behind a line marked on the ground with feet slightly apart. A two foot take-off and landing was used, with swinging of the arms and bending of the knees to provide forward drive. The learner attempted to jump as far as possible, landing on both feet without falling backwards.

Figure 3.11: Starting position of standing broad jump

Figure 3.12: Recording of standing broad jump

3.9.10 Ten x 5m (Eurofit, 1993)

- **Purpose**

To provide an indication of speed and agility.

- **Equipment**

Stopwatch, measuring tape, marker cones, rope, a flat non-slip surface.

- **Method**

The course was set-up, with marker cones placed five metres apart. Two pieces of rope placed along the ground at these points, clearly indicated the start and finish lines of the five-metre distance. Each learner started behind the line on one side of the shuttle. After a countdown (“3, 2, 1, start”) the learner ran as fast as possible between the cones, crossed the line with both feet, then ran back to the starting point. This was repeated five (ten shuttles) times without stopping (covering 50 metres total) in the shortest possible time.

- **Interpretation**

The time taken to complete ten shuttles was recorded to the nearest 0.1 second. If a learner did not cross the line with both feet he/she was penalised 0.1 seconds. If this occurred more than once then the test was repeated following a short rest.

Figure 3.13: Starting position of 10 x 5 m shuttle

Figure 3.14: Turning point of 10 x 5 m shuttle

CHAPTER FOUR

4. RESULTS AND DISCUSSION

This chapter provides analyses and discussion of the results gathered in the current study. Results will be presented in four sections as follows:

Section A: Situational analysis and International Physical Activity and Environment Network questionnaire (IPEN) and demographics of the sample

Section B: Learner questionnaire pre- and post-intervention

Section C: Learners fitness test pre- and post-intervention

Section D: Feedback from educators' training workshops and semi-structured interviews

Section E: Feedback from grade six parents' focus groups

SECTION A

4.1 SITUATIONAL ANALYSIS AND IPEN QUESTIONNAIRE

4.1.1 SITUATIONAL ANALYSIS

The situational analysis was completed by the principals from intervention and control school respectively. The intervention school was registered as a health promoting school with the Department of Health (DoH) while the control school was not registered as health promoting school with DoH. A health promoting school can be defined as a school which is constantly strengthening its capacity as a healthy setting for learning, working and living. A school receive this status when various criteria are reached. These criteria are determined by the DoH and a school is awarded health promoting status by the DoH. Important classifications of a health promoting school can include:

- Developing its curriculum and life skills programmes to address its health needs.
- Striving to improve the health of the school personnel, families and the community members as well as learners.
- Striving to create a healthy environment in its broadest sense, through school health education (Life Orientation) and provides health promotion programmes for staff, learners and community.

Physical activity timetable

Both school reported to have physical activity (PA) in their current weekly timetable. The intervention school reported to have one session per week, which last for 60 minutes. The control school reported to have one session per week, which last for 30 minutes. Additionally, both schools offer health education, which include topics like basic nutrition, benefits of healthy eating, benefits of sport and exercise and how to be active.

Sporting facilities

Both schools reported lack of sporting facilities with grass, no indoor sporting facilities, no gymnasium, and no swimming pool. The intervention school reported to have one netball court, which was the only open space in the entire school. This space was used as a multi-sport open space by learners playing different sports.

The control school reported to have two open areas. One was used as a netball court. However, the other space was not utilised as it was too close to the classroom windows.

Sporting equipment

The intervention school reported to have only netball and cricket (no protective gear) equipment available in the school. The control school reported to have hoops, soccer balls, netballs, beacons and skipping ropes as the sporting equipment available in the school.

Sports teams

Both schools reported to have only soccer and netball teams. Both schools reported to offer extra-mural sport.

Tuckshops

Both schools did not have tuck shops in the schools. However, both schools have vendors available in the schools. Vendors were reported to sell chips, sweets and vetkoeks.

Vegetable gardens

Both school reported that they do not have vegetable garden.

4.1.2 IPEN QUESTIONNAIRE

Types of residences in the neighbourhood

The IPEN questionnaire was completed by the principal from the intervention and control schools respectively. The intervention school reported to have traditional mud houses and houses comprising brick and cement walls in the neighbourhood, Shacks were the most available types of residence in the neighbourhood. It was also reported that the intervention school neighbourhood had a few vegetables gardens.

On the other hand, the control school, at least 10km away from the intervention school, was situated in the neighbourhood with all houses built of brick and cement. Similarly, this neighbourhood also reported to have a few vegetable gardens.

Stores, facilities and other things in the neighbourhood

The intervention school reported that it takes 11- 20 minutes to reach the nearest hardware store, post office, other schools, salon/barber shop and to the parks, while the control school, 6 -10 minutes.

The intervention school reported that it took 20 - 30 minutes to walk to reach the nearest supermarket, fruit/vegetable market and the library. The control school reported that it takes 6 -10 min to walk to the nearest fruit/vegetable market and to the supermarket, while 1 - 5 minutes to walk to the nearest library.

The intervention school reported that it took 30+ min to walk to laundry/dry cleaners, clothing store, bank/credit union, non-fast food restaurant and video store. However, the control school reported that it took 6 - 10 min to walk to laundry/ dry cleaners, clothing store, bank/ credit union and video store.

Access to services

Both intervention and control schools reported that there were many different places to walk to including easy walk to bus/ train stop. The intervention school strongly believed that streets in the neighbourhood were “hilly” thus making it difficult to walk, including walking to the stores.

Streets and surroundings in neighbourhood

Both intervention and control school reported that streets in the neighbourhood were built-up, i.e. tarred surfaces for and motor vehicles. Additionally, both intervention and control schools reported that most streets have sidewalks in the neighbourhood.

Both intervention and control schools reported that there were no trees along the streets. However, there are many attractive natural sights like landscaping views.

Neighbourhood safety

Both intervention and control schools reported that most drivers in the neighbourhood exceeded the posted speed limits while driving. Both schools reported that at night, streets are well lit and walkers can easily be seen walking in the streets by people in their homes. Furthermore, there are crosswalks and pedestrian signals to help walkers cross. However, both schools reported a high crime rate that makes it unsafe to walk during the day and at night.

4.2 DEMOGRAPHICS OF THE SAMPLE

The study comprised total sample of 129 grade six learners from control and intervention school. Learners (n=74) from a total of 138 grade six learners from the intervention school volunteered to participate in this study. The control school comprised a sample of (n=55) learners from a total of 61 grade six learners.

Results were presented as a whole sample including both the control and intervention schools, however, in some cases results were presented separately as intervention or control schools.

Demographics questions were analysed as a whole sample. There were inconsistencies between pre- and post-data for selected questions such as household and type of home. However, this could be due to changes during the intervention period.

Table 4.1 showed that 129 learners completed the questionnaire pre- and post-intervention. The learners comprised 51.2 % males and 48.8% males. Age ranged from 11 - 15 years with majority (33.3%) of learners being 12 years old. Majorities (96.9 %) of learners were black and a minority of 3.1 % are Coloured. 7% speak Sotho, 18.6% Xhosa, 2.3% English, 0.8% Swati and 71.3% speak IsiZulu at home. At least three-quarter (73.6%) of learners were cared by their mother in the households ($p<0.0005$). 54.3 % grew vegetables garden and or fruit trees. More than half of learners (62.8 %) went to school in the same neighborhood that they lived in.

Table 4.1: Learner Demographics (n=129)

Demographics		n	%
Gender	Males	66	51.2
	Females	63	48.8
Racial group	Black	125	96.9
	Coloured	4	3.1
Language	Sotho	9	7.0
	IsiXhosa	24	18.6
	English	3	2.3
	Swati	1	0.8
	IsiZulu	92	71.3
Age	11	38	29.5
	12	43	33.3
	13	30	23.3
	14	13	10.1
	15	5	3.9
Primary caregiver	Mother	95	73.6
	Father	6	4.7
	Siblings	4	3.1
	Grandmother	15	11.6
	Grandfather	1	0.8
	Aunt	7	5.4
	Cousin	1	0.8
Home	Shack	24	18.9
	House	64	50.4
	Flat	23	18.1
	Mud hut	12	9.4
	Other	4	3.1
Refrigerator in households		120	93.0
Electrical stove in households		88	68.2
Computer in households		31	24.0
Hi-fi radio in households		20	15.5
Television in households		122	94.6
Car within households		41	31.8
Grow vegetables or fruit trees		70	54.3
Chicken/birds in households		35	27.3
Learners attend school in the same neighbourhood in which they live		81	62.8

Figure 4.1 shows the results from a chi-square goodness of fit test. A significant ($p<0.0005$) number of the respondents lived in a brick house. Majority of the respondents had one or two rooms per home and have essential appliances. 24% of learners had computers in their homes.

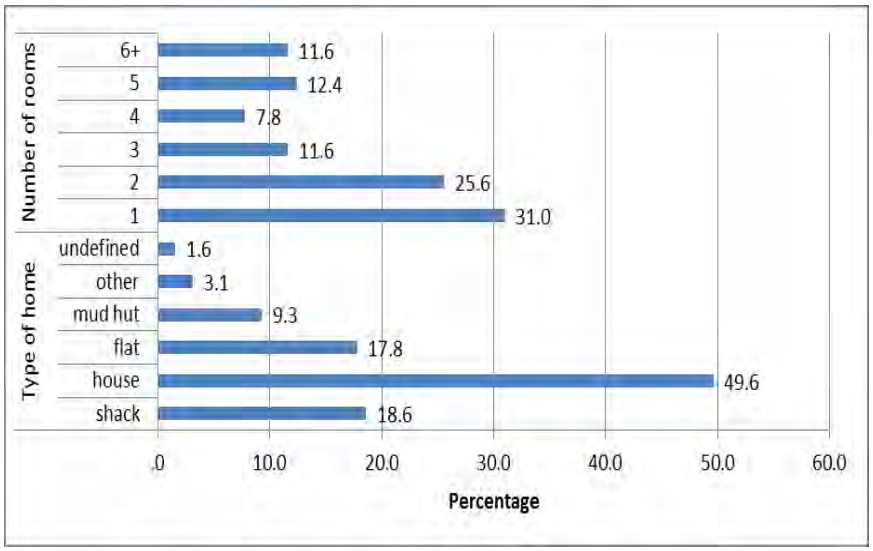


Figure 4.1: Type of homes and number of rooms (n=129)

Figure 4.2 shows that majority of participants had water and electricity supplied to their homes. Only a minority (5.4%) did not have an electricity supply in their homes.

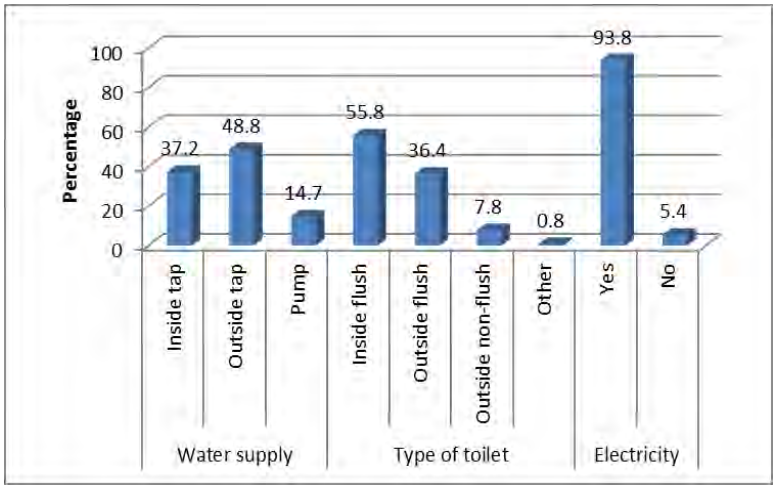


Figure 4.2: Water supply, toilet type and electricity (n=129)

Figure 4.3 shows that learners used different modes of transport that include taxi, train bus, bicycle and foot, with 71% of learners that walked to and from school post-intervention. The mode of transport to school did not change significantly before and after intervention for the control group (p=0.020) or the intervention group (p=0.007). Based on the sample demographics, it was assumed that the socio-economic status of the majority of learners in this study ranges from low-to middle-income groups.

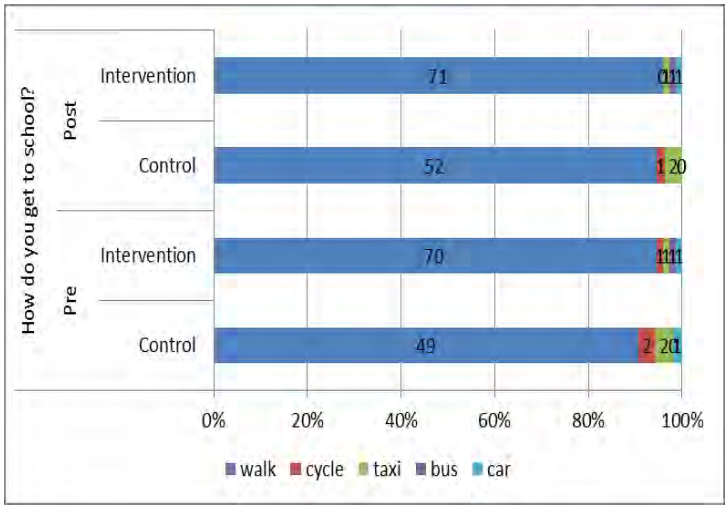


Figure 4.3: Mode of transport (n=129)

SECTION B

4.3 PHYSICAL ACTIVITY AND SPORTS PARTICIPATION PRE- AND POST-INTERVENTION

Results from the learner questionnaire determined PA and sports participation during selected time periods, namely club/school sports team; Physical Education (PE)/Life Orientation (LO) lessons; and lunch breaks. Additionally, reports from educators of lunch break activities will be included.

4.3.1 PHYSICAL ACTIVITIES – SPORTS CLUB OR SCHOOL SPORTS TEAM

Figures 4.4 a and b represents the whole sample of PA and sports participation of each learner at sports club/school team. Running and soccer are the most popular activities

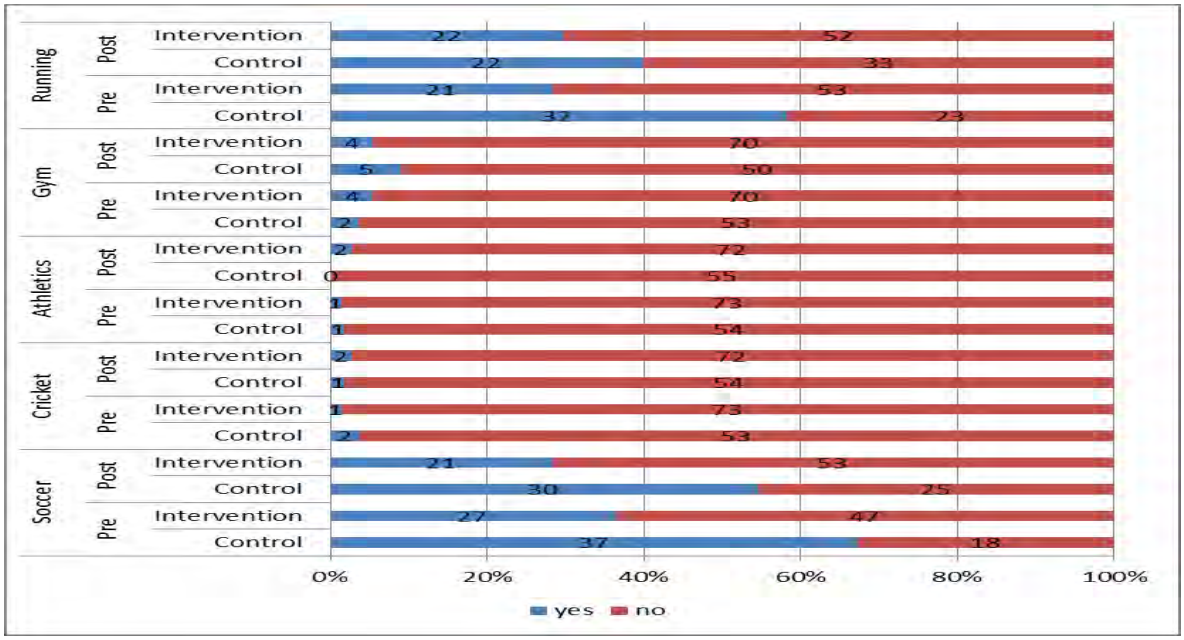


Figure 4.4a: Physical activities- sports club or school team (n=129)

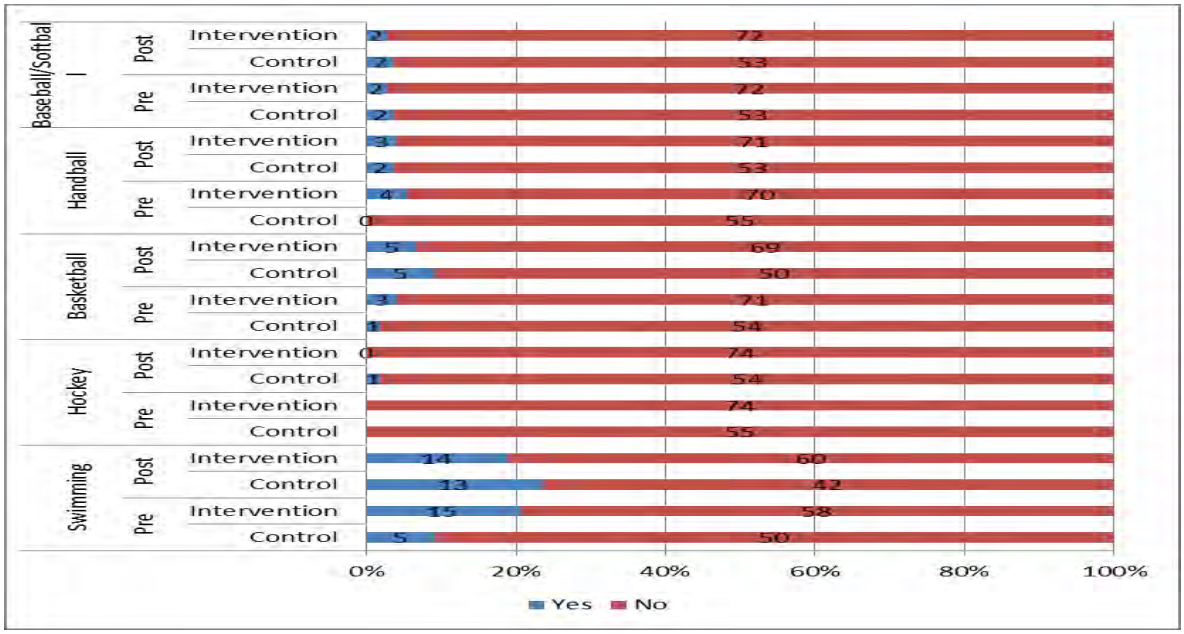


Figure 4.4b: Physical activities- sports club or school team (n=129)

Figures 4.5 a and b represents the whole sample of PA and sports participation of each learner during PE/LO lessons. Results show that the number of activities for the control group participated in during PE lessons increased significantly post-intervention (p=0.005). This increase in number of activities could be prompted by the session of PA questionnaire by the researcher with the learners.

4.3.2 PHYSICAL ACTIVITIES – LO/ PE

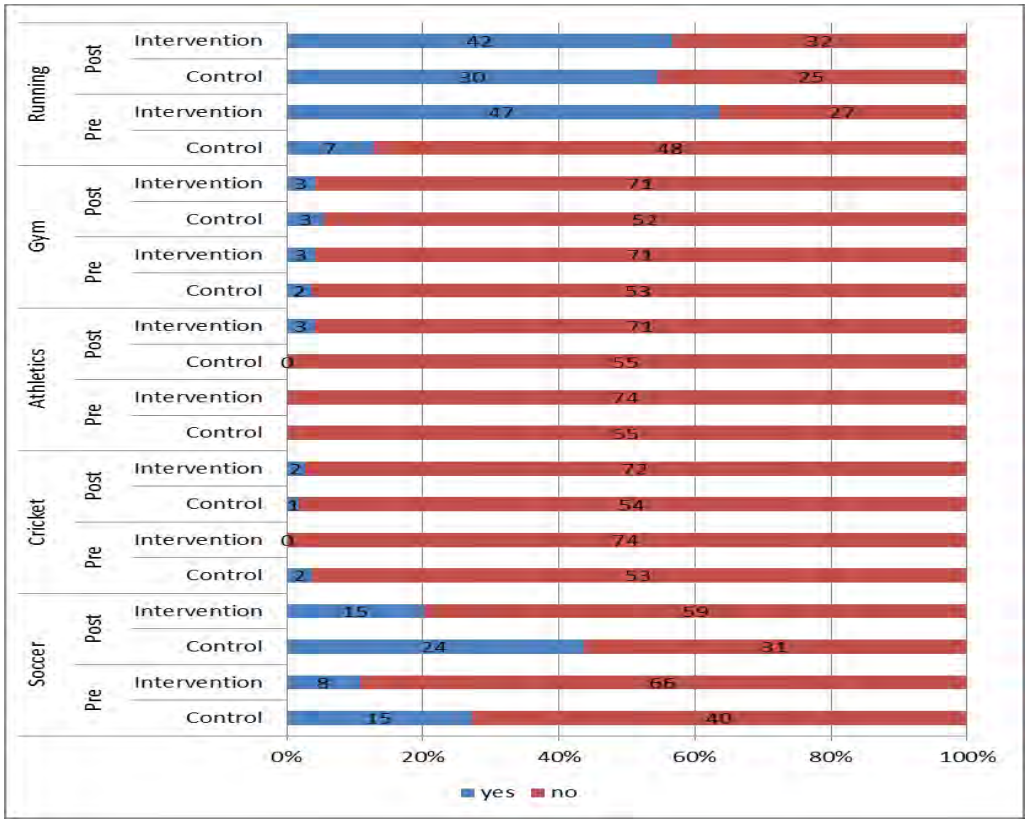


Figure 4.5a: Physical activities during LO/PE lesson (n=129)

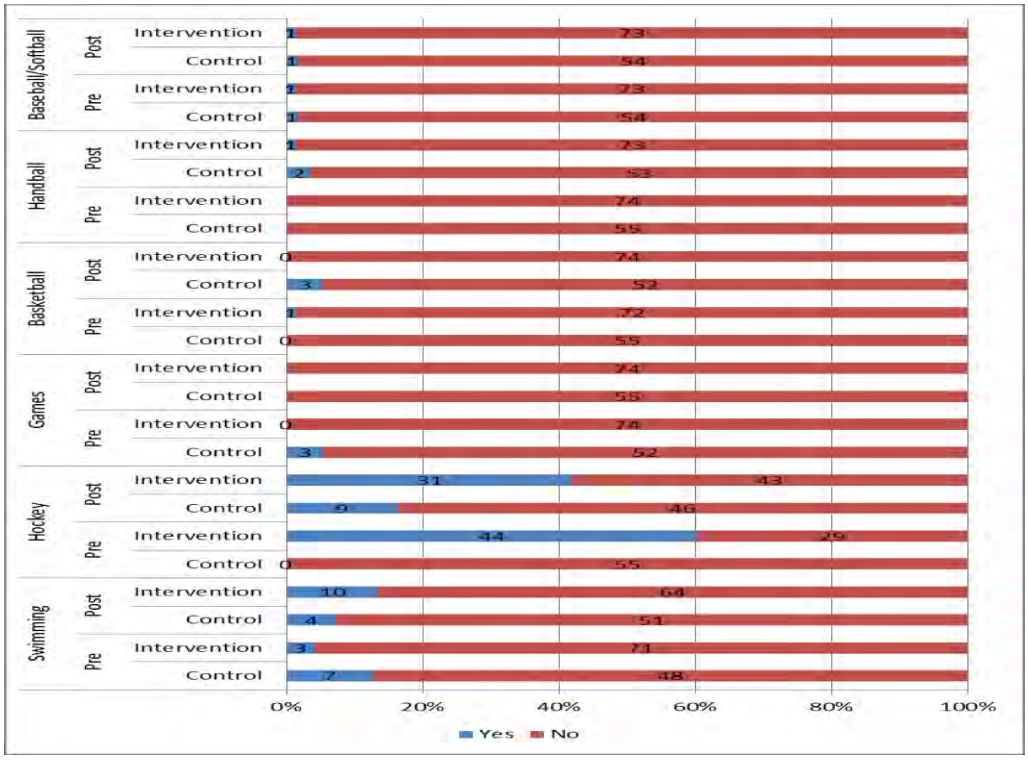


Figure 4.5b: Physical activities during LO/PE lesson (n=129)

Figure 4.6 represents the time spent by learners participating in PA during LO/PE lessons. For the control group (n=55), the average length of time of participation was significantly (p=0.002) higher post-intervention.

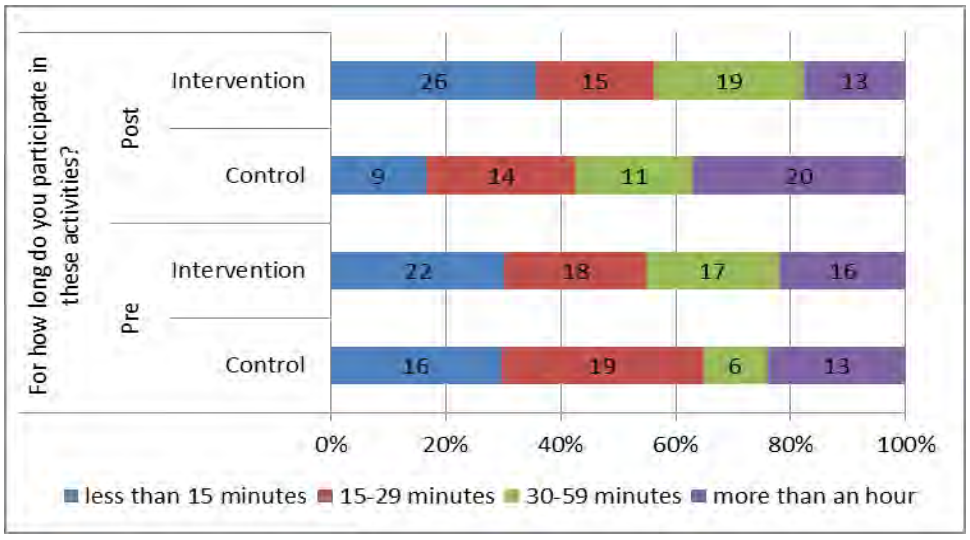


Figure 4.6: Time spent participating in PA during LO/PE lessons (n=129)

4.3.3 Physical activities - lunch breaks

Figure 4.7 represents learners' behaviour during lunch breaks. Interestingly, results from the learner questionnaires shows that learners spent more time running around during lunch breaks pre- intervention for both control group (p=0.006) and intervention group (p=0.024).

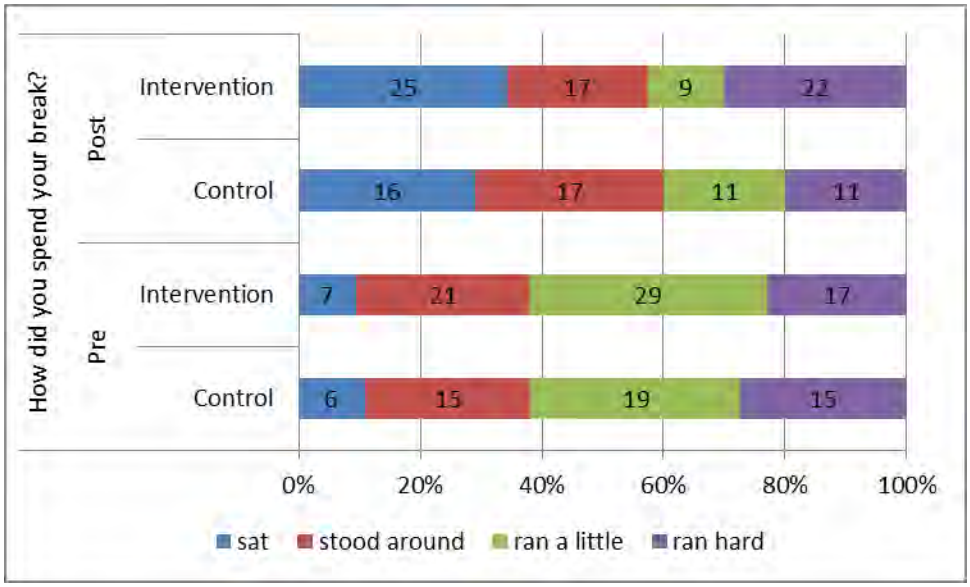


Figure 4.7: Leaners' behaviour during lunch breaks (n=129)

Comments from educators included: "*Learners are different some are active and some are not, post-intervention active learners would run around and chase one another, boys kick soccer ball and girls play ushumpu*".

Educators stated that learners were more willing to play and run around during breaks during the intervention, especially with the new games that were introduced to the learners during this period. Games like chain tag and running chasing games were played. Learners were more active during the lunch breaks when they were supervised by the educators, however, educators could not supervise the learners at all times due to busy schedules.

"*I think learners are more active when they are supervised by teachers, when we go outside during break time learners like to be watched and encouraged as a result more learners who do not usually participate in the games during break come and play with the active groups when we as teachers are walking around and supervising them"*.

"*Unfortunately with limited time we have and more school work to do, we hardly go outside to watch and supervise learners when they play during break time*".

Educators reported that they encouraged learners to play, but some learners were not interested as they would stand against the wall and talk with friends. Furthermore, the intervention group post-intervention spent a significantly ($p=0.043$) higher average amount of time participation in PA during LO/PE lessons per week.

SECTION C

4.4 PHYSICAL FITNESS TESTS

Learners from the intervention and control groups completed a battery of physical fitness tests. Baseline data for the following tests were collected pre-intervention and re-assessed post-intervention.

The measures for height and weight both pre- and post-tests were not significantly different for the both control and intervention groups. All learners were below the 85th (at risk of overweight) and 95th percentile (obese) body mass index. The intervention group's sit-and-reach scores significantly increased post-intervention ($p=0.043$). The control group showed no significant differences post-intervention. Sit-up scores significantly increased post-intervention ($p=0.007$) group.

The control group showed no significant differences post-intervention. The intervention group shuttle run scores significantly decreased post-intervention ($p<0.0005$), while there was no significant difference in the control groups between pre- and post-shuttle run scores.

The plate tapping scores decreased significantly post intervention in the intervention group ($p<0.0005$), as well as post- plate tapping scores significantly decreased from the control group ($p=0.002$). Flamingo balance scores significantly increase post-intervention for both the intervention ($p=0.011$) and control groups ($p<0.0005$).

There were no significant differences in the standing long jump scores for both groups.

TABLE 4.2: Fitness tests scores pre- and post-control (n= 54) and intervention (n= 74) (mean ± standard deviation)

Components	Control (mean ± standard deviation)			Intervention (mean ± standard deviation)		
	PRE	POST	p- value	PRE	POST	p-value
Height	147.00 (±9.18)	148.700 (±8.11)		145.95 (±7.76)	145.95 (±7.82)	
Weight	41.33 (±7.76)	42.68 (±7.71)		41.18 (±9.04)	41.09 (±9.84)	
Sit and reach	29.74 (±7.54)	30.03 (±7.88)		33.47 (±5.55)	34.10 (±5.85)	P=0.43*
Sit-ups	17.48 (±2.68)	17.94 (±3.31)		18.24 (±4.88)	19.20 (±4.87)	P=0.007*
Shuttle run	22.29 (±8.58)	21.35 (±2.10)		20.55 (±2.04)	19.47 (±4.10)	P<0.0005*
Plate tapping	14.11 (±1.98)	13.52 (±1.83)	P=0.002*	15.33 (±2.29)	13.24 (±1.74)	P<0.0005*
Flamingo balance	12.45 (±3.29)	16.25 (±5.48)	P<0.0005*	12.24 (±4.76)	13.36 (±4.62)	P=0.011*
Standing long jump	150.47 (±26.35)	149.20 (±20.57)		136.10 (±21.75)	133.41(±19.95)	

Level of Significance:

* $p < 0.05$

SECTION D

4.4.1 FEEDBACK FROM EDUCATORS' TRAINING WORKSHOPS

Educators (n=19) rated the training workshops as a very important tool to improve knowledge on PA and nutrition within the school. Educators reported that the workshops helped them to gain and improve their teaching strategies by incorporating the innovative teaching strategies they learned during the workshops. Comments included: "*Lessons were enjoyable and not repetitive. We now have courage and know what to do not merely providing learners with a ball to run as previously practiced".*

"I introduce a new game every PE lesson, my learners enjoy these activities".

Workshops helped revive their passion to practice healthy lifestyle and remain physically fit by participating in the games during the training workshops and at homes.

Comments included:

"*We are very happy with the workshops that we had, as we've gained more knowledge with different strategies to incorporate into PE and with these new strategies learners show more interest and that has inspired us and pushed us to learn more about PA and PE. Before these workshops, we did not enjoy teaching PE because we didn't have much knowledge about physical activities".*

The researcher observed a good improvement in workshop attendance by educators as workshops progressed. Initially there was also a good response from the educators to wear the proper PA attire during the workshop, although the select few appropriately attired would watch during the practical sessions of the workshop.

4.4.2 FEEDBACK FROM EDUCATORS' SEMI-STRUCTURED INTERVIEWS

The grade six LO/PE educators (n=2) were interviewed pre- and post- intervention. Educators reported that LO lessons comprised of PA and health education, however, PA and PE were not a priority pre- intervention. Comments included:

"I am not the PE specialist and reality is I do not know how to teach PE effectively because I only make learners do frog exercises".

“Sometimes when it is PE period I let learners go outside and run around without following any structured exercises or programme”.

Educators reported that workshops helped them learn about planning outdoor PA practical lessons and designing PA circuits. Educators reported that learners responded positively to the inclusion of more structured PA in their lessons.

Comments included:

“We learned a lot from workshops and now we are able to come with new ideas and programmes that benefit learners in terms of their physical abilities, healthy and we are sure that these activities/programmes are safe for their age group”.

“It is so much easy to do circuit PA, it is very easy to observe and supervise all learners and most importantly they all get to participate in the activity at the same time”.

Initially, educators reported that they did not enjoy teaching PE due to the lack of proper skills to teach PE. However, with help of the workshops passion and attitude towards teaching PE improved. Comments included:

“Honestly before the workshops I did not enjoy teaching PE as I had no idea how to structure the lesson and I knew fewer activities that I do in a PE class”.

Educators recommended having more workshops organised. Comments included:

“We would like to have more workshops to teach us about PA and teaching PE because DoE expect us to teach PE yet we do not have enough knowledge to do so”.

Additionally educators reported that the lack of sport facilities within the school plays a major limitation for structured sport like volleyball, soccer and netball.

SECTION E

4.5 PARENTS' FOCUS GROUPS

Parents (n= 19), 15 females and four males attended focus group sessions. Initially, parents were uneasy and unwilling to participate in discussions. However, as sessions progressed there was a noticeable improvement in discussions with and among parents. The following common themes emerged during the four focus group sessions:

4.5.1 PHYSICAL ACTIVITY AND ITS BENEFITS

Majority of the parents demonstrated a basic knowledge regarding PA and its benefits. Selected parents were unhappy with the reduced attention given to the sport facilities within the school setup. Parents found focus groups to be helpful, providing them with new information like the recommended minimum daily amount of PA. Parents further suggested that such platforms should be provided by schools, working together with the provincial Department of Education to learn more about PA. Majority of parents reported that they encourage their children to participate in PA within the school and to join structured clubs in their community. Furthermore, a minority of parents thought that it is necessary for parents to participate in some form of structured sport or PA in their community as a way of leading by example for their children. Comments included:

"My son play soccer in one of the teams here in the township and I know that is good for him to stay out from drugs".

"…yes it is a good thing for our children to play sport and we encourage them but I get angry and punish my daughter when she comes back at 20h00 from netball practice because it is not safe for girls to walk at night".

Majority of parents, specifically mothers reported that daily chores like working in the garden and the washing of clothes were sufficient to keep them active throughout the day. Parents spend about five to eight hours working on their daily chores, most of these daily chores require them to kneel and bend for long hours without changing body positions which may result into back pains at the end of the day. Furthermore, parents' daily chores seldom include running or walking around. Comments included:

"Ï do not have a paying job but I'm a pensioner and my daily activities are to wake up clean the house and during summer time I work in the garden".

"I work as a cleaner, 4 days a week I clean and wash clothes from 8h00 in the morning till 17h00 in the afternoon".

4.5.2 FOOD CHOICES AND MEALS

Varying views from parents regarding food choices and meals that are prepared for children were expressed. Majority of parents prepare breakfast for their children like porridge and/or slices of bread and coffee/tea. Parents believe that it is necessary to provide their children with energy until the lunch break as at this time, the school provides a meal to the children. Meals comprised maas (sour milk), vegetables and fruit, samp and beans, rice and mince meaty. However, selected parents do not prepare breakfast for their children, as a result the first meal of the day for these children is the meal provided by the school during the lunch break.

On the other hand, selected parents reported that they prepare cereal for their children and instruct their children not to eat meals that are provided at school. Comments included:

"My son do not like some of the meals served at the school and we as his parents like him to eat what he wants whenever he wants it thus give him pocket money or make him lunch box of what he desires at any given day. Furthermore we believe that if he does not eat the meal provided at school, he open room for more needy children from poor backgrounds to benefit from the school meals",

"Not that I undermine meals provided by the school, but I just prefer my little angel to eat lunch box that I prepare for her".

Additionally, majority of the parents reported that they do not purchase fruits regularly or weekly. Selected parents purchase vegetables while others grow their own vegetables.

4.5.3 LUNCH BOX OR POCKET MONEY

At least half of the parents believe that providing pocket money to children plays a substantial role in promoting the purchase of unhealthy foods from vendors outside the school, as well as for the purchase of cigarettes and alcohol. In turn, these parents do not provide their children with pocket money as they believe preparing lunch boxes for their children or the meals provided by the school is sufficient to sustain learners throughout school hours. Comments included:

"*I own a tuck shop at home, everything that vendors sell at school is also available in my tuck shop. I use to give my children fruits, lunch boxes and money to school but eventual learn that when they get to school they use money to buy fizzy chips and many other unhealthy food. I decided to stop giving the money".*

On the contrary, selected parents believe that pocket money is vital for the happiness of their children and to avoid peer pressure from other learners who also obtain pocket money from their parents. Furthermore, these parents believe that when they do not provide pocket money to their children, their children may now turn to stealing from home or other learners at school. Comments included:

"… *even if I don't have money I make means to borrow from neighbors because when I do not give them they still come back home with some fizzy chips that they bought from school, if where they got the money to buy it I cannot tell because I do not know".*

Overall, responses from parents stated that the focus group sessions played a vital role in providing knowledge regarding PA, health, basic nutrition and most importantly PE in the LO curriculum.

4.6 DISCUSSION

The discussion will expand on areas of significance obtained during educator interviews, parent focus groups and results from the learner questionnaire and fitness tests, taking into consideration the aims of the study.

4.6.1 The knowledge, attitudes and practices of grade six educators towards PA post-intervention

Post-intervention findings showed that the educators' knowledge of innovative teaching strategies that incorporate physical activities improved. Life Orientation educators gained more interest towards teaching PE and positive attitude, once knowledge regarding PE teaching methodologies. Post-intervention findings have shown that LO educators gained more confidence towards teaching PE. This is supported by findings from the intervention; Healthnutz programme which was conducted in Gauteng showed improved educators' attitude, perception and practice towards PA (Draper, de Kock, et al., 2010). Furthermore, Naidoo and Coopoo (2012) reported that PA training workshops as part of a school-based intervention, helped to provide educators with incremental improvements and instructional teaching strategies including physical movement in various other subjects.

4.6.2 The knowledge, attitudes and practices of grade six learners towards PA post-intervention

Overall results from the learner questionnaires have shown that a school-based PA intervention can help improve learners' PA knowledge and attitudes, and to some extent improve PA participation during school hours. Comments from educators regarding learners PA have shown that knowledge, attitudes and practices from learners improved during school hours post-intervention. Similarly, Naidoo et al. (2009) reported that a multi-component intervention can improve learners' behaviour and increase PA participation during formal instruction, lunch breaks and after school. De Meester et al. (2009) reported a similar intervention of 12 weeks implemented in PE lessons resulted in positive PA habits from learners.

4.6.3 The physical fitness levels of grade six learners post-intervention

Selected fitness results improved significantly ($p<0.05$) post-intervention. These included, sit-and-reach; sit-up; shuttle run; and plate tapping scores. Thus, one can

infer that participation in the intervention can improve selected components of learners' physical fitness. Similarly, a school-based PA intervention conducted in KwaZulu-Natal, South Africa introduced various methods of PA within the schools' existing curriculum demonstrated that a school-based PA intervention programme has the potential to increase the PA levels of learners (Naidoo, et al., 2009). However, Meyer et al. (2014) reported that school-based PA intervention studies yields favourable immediate health benefit to improve fitness which is not maintained after intervention ceased.

Additionally, findings have shown that a lack of sport facilities within the schools, play a major role in limiting structured school sports and this in turn, may deny learners the opportunity to showcase their sporting talent.

4.6.4 The knowledge of grade six's parents towards PA and nutrition post-intervention

The intervention has showed improved parental attitudes and behaviours regarding the PA of leaners. The intervention improved parents' knowledge of PA and healthy food choices. There was a raised PA awareness in parents and this in turn, encouraged learners to participate in sport at school and in the community. The majority of parents encouraged their children to eat healthy foods at school.

Similarly, a school-based PA intervention study conducted in the Alexandra township, South Africa introduced a PA intervention within the school curriculum, which worked together with educators and learners, has shown improvements in the PA levels of learners as well as promotes a healthy lifestyle within the school environment (Draper, de Kock, et al., 2010). Furthermore, a 10-month intervention study included CD-ROM learning and teaching for educators and an interactive website for learners, educators and parents. The intervention produced positive changes in the PA levels and body composition profiles of learners. The study also concluded that schools are suitable setting for the promotion of healthy lifestyles (Gorely, Nevill, Morris, Stensel, & Nevill, 2009a). The study report the impact of parents involved in the intervention after school, non-curricula school interventions included the provision of equipment to guide and monitor television use, video games and computer usage by children thus increasing time for PA (Jepson, et al., 2010).

Moreover, majority of the parents do not provide money to learners as they pack lunch boxes for learners and lunch is also served at school. However, a minority of parents believed that learners have to carry pocket money to school as this makes them feel equal with other peers. Parents further explained that children steal money at home and/or at school if they are not given pocket money by parents.

The researcher believes that all parents should prepare lunch boxes for learners every school day to supplement food that learners receive from school. However, providing pocket money to learners is not necessarily a negative practice, but depends on what learner chooses to spend their money on. Hence, healthy food choices and good dietary habits is influenced by parents as well is an essential component of the LO curriculum.

4.6.5 The effectiveness of a four month PA and family intervention on grade six learners' health behaviour post-intervention

The four-month PA activity and family intervention proved to be effective as it improved PA awareness in school environment to both learners and educators. Physical fitness of learners improved from pre- to post-intervention. This is supported by Draper et al. (2010) that even limited exposure to a PA intervention can lead to a significant improvement in aspects of learners' fitness.

The school setting is a favourable environment to promote PA and PA awareness in school among learners and educators (Naidoo & Coopoo, 2012). The intervention raised PA awareness, improved knowledge, attitudes and practices of both educators and parents. Furthermore, parents' improved knowledge, attitudes and practices regarding PA, in turn improved learners PA participation in the school Ornelas et al. (2007) concluded that strategies to promote PA among adolescents should focus on increasing levels of family cohesion and parental engagement.

4.7 LIMITATIONS OF THE STUDY

- A purposive sample for this study was not representative of all school children in KwaZulu-Natal, therefore generalisations cannot be made to grade six learners in other areas or provinces or to other grades.

- The post-intervention changes may be only short-term.
- Questionnaires were based on learners self-reports. This method can result in problems like memory bias, comprehensibility and concentration problems.
- During mid-term break, learners were not monitored/ encouraged by researcher or teachers to participate in physical activity, however, parents were believed to play this role.
- Motivation is always a limitation when field tests are part of the testing programme, however, the researcher and research assistants attempted to motivate all participants equally.

CHAPTER FIVE

5. CONLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

Following the analysis of the results, the following conclusions may be drawn:

- Findings indicate that by implementing a school-based physical activity (PA) intervention, the knowledge, perceptions, and practices towards PA of learners can be improved as well as increase the rate of PA participation of learners during Life Orientation (LO)/Physical Education (PE) lessons and during lunch breaks. Furthermore, the PA intervention programme increased learners' fitness levels, thus the hypothesis of the study is accepted.

- The introduction of various methods of PA within the schools' existing curriculum, working with educators and parents can improve the physical fitness levels and healthy eating behavior of learners without disrupting normal learning and teaching in the school.

- A school-based PA activity intervention can improve PA awareness among educators, learners and parents.

- Specific training workshops can improve non-PE educator specialist skills to teach PE better within the school's curriculum. As a result, better skilled educators were confident in their teachings as well as advocated for a healthy school environment through physically active, healthy learners and educators. Furthermore, participation in the intervention was accepted by the educators, specifically due to the fact that educators contributed to the planning of the PE/LO lessons.

- The parental involvement as part of the intervention proved to play a major role in empowering parents with the knowledge regarding the impact and benefits of PA on children and adolescents. Moreover, the parents

themselves were empowered with suitable PA and nutritional advice for adults.

- Overall, a combined educator and parental involvement PA intervention can positively influence learner's knowledge, attitudes and practices towards PA.

5.2 RECOMMENDATIONS

Based on the results and the conclusions derived from this study, the following recommendations appear to be warranted:

- The Department of Education should empower LO educators with PE training workshops to improve and refresh educators' skill and knowledge regarding the teaching of PE.

- Further research involving the entire school population, more community members and a longer intervention time period.

- A stronger collaboration between schools and the provincial department of Education, Health as well as Sport and Recreation regarding the promotion of healthy lifestyles.

- The Department of Education should launch more health promoting schools.

- Department of Health and Education should control food sold by vendors, work together to hold workshops for school vendors on selling healthy food to learners .

REFERENCES

Al-Hazzaa, H., Abahussain, N., Al-Sobayel, H., Qahwaji, D., & Musaiger, A. (2011). Physical activity, sedentary bahaviors and dietary habits among Saudi adolescents relative to age, gender and region. *International Journal of Behavioural Nutrition and Physical Activity, 8*(140), 1-14.

Amosun, S., Reddy, P., Kambaran, N., & Omardien, R. (2007). Are students in public high schools in South Africa physically active? *Canadian Journal of South Africa Public Health, 98*, 254-258.

Armstrong, M., Lambert, M., Sharwood, K., & Lambert, E. (2006). Obesity and overweight in South African primary school children – the health of the nation study. *South African Medical Journal, 96*, 439 -444.

Atlantis, E., Barnes, E., & Singh, M. (2006). Efficacy of exercise for treating overweight in children and adolescents: a systematic review. *International Journal of Obesity, 30*(7), 1027-1040.

Bennett, G., Wolin, K., Viswanath, K., Askew, S., Puleo, E., & Emmons, K. (2006). Television viewing and pedometer-determined physical activity among multiethnic residents of low-income housing. *American Journal of Public Health, 96*, 1681-1685.

Biddle, S., Gorely, T., & Stensel, D. (2004). Health enhancing physical activity and sedentary behaviour in children and adolescents. *Journal of Sports Science, 22*(8), 679-701.

Birch, L., & Ventura, A. (2009). Preventing childhood obesity: what works? *International Journal of Obesity, 33*, 74-81.

Booth, M., Chey, T., Wake, M., Norton, K., Hesketh, K., Dollman, J., & Robertson, I. (2003). Change in the prevalence of overweigt and obesity among young Australians, 1969-1997. *American Journal of Clinical Nutrition, 77*(1), 29-36.

Cale, L., & Harris, J. (2006). Interventions to promote young people's physical activity: Issues, implications and recommendations for practice. *Health Education Journal, 65*(4), 320-337.

De Meester, F., Van Lenthe, F., Spittaels, H., Lien, N., & De Bourdeaudhuij, I. (2009). Interventions for promoting physical activity among European teenagers: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity, 6*(82), 5868.

Draper, C., de Kock, L., Grimsrud, A., Rudolph, M., Nemutandani, S., Kolbe-Alexander, T., & Lambert, E. (2010). Evaluation of school-based physical activity intervention in Alexandra Township. *South African Journal of Sport Medicine, 22*(1), 12-19.

Draper, C., de Villiers, A., Lambert, E., Fourie, J., Hill, J., Dalais, L., . . . Steyn, N. (2010). Healthkick: a nutrition and physical activity intervention for primary schools in low-income settings. *BMC Public Health, 10*(398), 1-12.

Eurofit. (1993). *Eurofit Tests of Physical Fitness* (2nd ed.). Strasbourg.

Golan, M., & Crow, S. (2004). Parents are key players in the prevention and treatment of weight-related problems. *Nutrition Reviews, 62*, 39-50.

Gorely, T., Nevill, M., Morris, J., Stensel, D., & Nevill, A. (2009a). Effect of a school-based intervention to promote healthy lifestyles in 7-11 year old children. *International Journal of Behavioral Nutrition and Physical Activity, 6*(5), 1-12.

Gorely, T., Nevill, M., Morris, J., Stensel, D., & Nevill, A. (2009b). Effect of a school-based intervention to promote healthy lifestyles in a 7-11 year old children. *International Journal of Behavioral Nutrition and Physical Activity, 6*(5), 1-12.

Gortmaker, S., Cheung, W., Peterson, k. E., Chomitz, G., Cradle, J., Dart, H., . . . Laird, N. (1999). Impact of school-based interdisciplinary intervention on diet and physical activity among urban primary school children. *Archives of Pediatrics and Adolescent Medicine, 153*, 975-983.

Jansen, P., Roza, S., Jaddoe, V., Mackenbach, J., Raat, H., Hofman, A., . . . Tiemeier, H. (2012). Children's eating behavior, feeding practices of parents and weight problems in early childhood: results from the population-based generation R study. *International Journal of Behavioral Nutrition and Physical Activity, 9*(130), 1-11.

Jepson, R., Harris, F., Platt, S., & Tannahil, C. (2010). The effectiveness of interventions to change health behaviours: A review of reviews. *BioMed Central Public Health, 10*(538), 1-16.

Kruger, H., Puoane, T., Senekal, M., & van der Merwe, M. (2005). Obesity in South Africa: challenges for government and health professionals. *Public Health Nutrition, 8*(5), 491-500.

La Torre, G., Masala, D., De Vito, E., Langiano, E., Capelli, G., Ricciardi, W., & PHASES. (2006). Extra-curricular physical activity and socioeconomic status in Italian adolescents. *BMC Public Health, 6*(22), 1-9.

Lee, I., Shiroma, E., Lobelo, F., Puska, P., Blair, S., & Katzmarzyk, P. (2012). Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet, 380*, 219-229.

Mayosi, B., Flisher, A., Lalloo, U., Sitas, F., Tollman, S., & Bradshow, D. (2009). The burden of non-communicable diseases in South Africa. *Lancet, 374*, 934-947.

McMurray, R., Harrell, J., S, D., Bradley, C., Cox, L., & Bandiwala, S. (2012). The influence of physical activity, socioeconomic status, and ethnicity on weight status of adolescents. *Obesity Research, 18*, 130-139.

McVeigh, J., Norris, S., & de Wet, T. (2004). The relationship between socio-economic status and physical activity patterns in South African children. *Acta Paediatr, 93*, 982-988.

Micklesfield, L., Lambert, E., Hume, D., Chantler, S., P, P., Dickie, K., . . . Goedecke, J. (2013). Socio-cultural, environment and behavioural determinants of obesity in black South African women. *Cardiovascular Journal of Africa, 24*, 369-375.

Micklesfield, L., Pedro, T., Kahn, K., Kinsman, J., Pettifor, J., Tollman, S., & Norris, S. (2014). Physical activity and sedentary behavior among adolescents in rural South Africa: levels, patterns and correlates. *BMC Public Health, 14*(40).

Mohlabi, D., Van Aswagen, E., & Mokwena, J. (2010). Barriers to the successful implementation of school health services in the Mpumalanga and Gauteng provinces. *South African Family Practice, 52*(3), 249-254.

Naidoo, R., & Coopoo, Y. (2012). The impact of primary school physical intervention in KwaZulu Natal, South Africa. . *African Journal for Physical, Health Education, Recreation and Dance, 18*(1), 75-85.

Naidoo, R., Coopoo, Y., Lambert, E., & Draper, C. (2009). Impact of a primary school-based nutrition and physical activity intervention on learners in KwaZulu-Natal, South Africa: a pilot study. *South African Journal of Sport Medicine, 21*(1), 7-12.

Nelson, M., & Gordon, L. (2006). Physical activity and sedentary behavior patterns are associated with selected adolescent health risk behaviours. *Pediatrics, 117*, 1281-1290.

Neumark-Sztainer, D., French, S., Hannan, P., Story, M., & Fulkerson, J. (2005). School lunch and snacking patterns among high school students: Associations with school food environment and policies. *International Journal of Behavioral Nutrition and Physical Activity, 2*(14).

Norman, J., Nelia, P., Neil, G., & Johanna, H. (2006). Food items consumed by students attending schools in different socioeconomic areas in Cape Town, South Africa. *Journal of Adolescent Health, 22*, 252-258.

Ogden, C., Caroll, M., Curtin, L., Lamb, M., & Flegal, K. (2010). Prevalence of high body mass index in US children and adolescents, 2007-2008. *Journal of the American Medical Association, 303*(3), 242-249.

Ornelas, I., Parreira, K., & Ayala, G. (2007). Parental influences on adolescent physical activity: a longitudinal study. *International Journal of Behavioral Nutrition and Physical Activity, 4*(3), 1-10.

Pate, R., Davis, M., Robinson, T., Stone, E., McKenzie, T., & Young, J. (2006). Promoting physical activity in children and youth. A leadership role for schools. A scientific statement from the American heart association council on nutrition, physical activity, and metabolism (physical activity committee) in collaboration with the councils on cardiovascular disease in the young and cardiovascular nursing. *Journal of the American Heart Association, 114*, 1214-1224.

Pomerleau, J., Lock, K., McKee, M., & Altmann, D. R. (2004). The challenge of measuring global fruit and vegetable intake. *The Journal of Nutrition, 134*, 1175-1180.

Salmon, J., Booth, M., Phongsavan, P., Murphy, N., & A, T. (2007). Promoting physical activity participation among children and adolescents. *Epidemiologic Reviews, 29*, 144-159.
Sibley, B., & Etnier, J. (2003). The relationship between physical activity and cognition in children: A meta-analysis. *Pedriatic Exercise Science, 15*, 243-256.
Story, M., Kaphingst, K., & French, S. (2006). The role of schools in obesity prevention. *The Future of Children journals, 16*(1), 109-142.
Temple, N., Steyn, N., Mayburgh, N., & Nel, J. (2005). Food items consumed by students attending schools in different socio-economic areas in Cape Town, South Africa. *Journal of Adolescent Health, 22*, 252-258.
Thomas, J., Nelson, J., & Silverman, S. (2005). *Research methods in physical activity* (5th ed.): Human kinetics.
Timperio, A., Salmon, J., & Ball, K. (2004). Evidence-based strategies to promote physical activity among children, adolescents and young adults. Review and update. *Journal of Science and Medicine in Sport, 7*(1), 20-29.
Trudeau, F., & Shephard, R. (2008). Physical education, school physical activity, school sports and academic performance. *International Journal of Behavioral Nutrition and Physical Activity, 5*(10), 1-12.
van der Merwe, M., & Pepper, M. (2006). Obesity in South Africa. *Obesity Reviews, 7*(4), 315-322.
Van Lippevelde, W., Verloigne, M., De Bourdeaudhij, I., Brug, J., Bjelland, M., Lien, N., & Maes, L. (2012). Does parental involvement make a difference in school-based nutrition and physical activity intervention? A systematic review of randomised controlled trials. *International Journal of Public Health*, 1-6.
Van Sluijs, E., McMinn, A., & Griffin, S. (2007). Effectiveness of intervention to promote physical activity in children and adolescents. Systematic review of controlled trials. *British Medical Journal*, 1-13.
Walker, A., Walker, B., Jone, J., & Ncongwane, J. (1981). Breakfast habits of adolescents in four South African populations. *American Journal of Clinical Nutrition, 36*, 650-655.
WHO. (2009). Intervention on diet and physical activity: what works. summary report. Geneva.
WHO. (2012). Population based approaches to childhood obesity prevention. Geneva.
WHO. (2014). Physical Activity, from http://www.who.int/mediacentre/factsheets/fs385/en/
Wildely, M., Pampalone, S., Pelletier, R., Zive, M., Elder, J., & Sallis, J. (2000). Fat and sugar levels are high in snacks purchased from student stores in middle school. *Journal of American Dietetic Association 100*(3), 19-22.
Wilmore, J., Costill, D., & Kenney, W. (2008). *Physiology of sport and exercise* (4th ed.): Human kinetics.

APPENDIX ONE

Learner questionnaire:

Physical activity knowledge, attitudes and practices

Subject Number: _____

Age: _____ years old

☐ Boy ☐ Girl

Name of school:

_____

Grade: ☐ Grade 4 ☐ Grade 5 ☐ Grade 6

Home address (street, number, town)

_____

Today's date: _____

1. How many people are there living in your home, including you? _____

2. Who looks after you most of the time when you are at home? (Tick **only ONE person**)

☐ Mother ☐ Father ☐ Sister or brother
☐ Grandmother ☐ Grandfather ☐ Aunt
☐ Uncle ☐ Cousin ☐ Someone else

3. What kind of home do you live in? (Tick **only ONE**)
☐ Shack ☐ House (with walls made of brick and cement)
☐ Flat ☐ Traditional mud house
☐ Another kind of home: _____

4. How many rooms do you have in your home, including kitchen, lounge, dining room, bedrooms (do not count the bathroom)? (**Tick only ONE**)
☐ 1 room ☐ 2 rooms ☐ 3 rooms
☐ 4 rooms ☐ 5 rooms ☐ 6 rooms or more

5. Where do you get your water from at home? (**You can tick more than one**)
☐ A tap inside your home ☐ A tap outside your home
☐ We fetch water from a pump ☐ We fetch water from a river or dam
☐ Somewhere else: _____

6. What type of toilet do you have at home? (**You can tick more than one**)
☐ Flush toilet inside ☐ Flush toilet outside
☐ Outside toilet that doesn't flush, e.g. bucket or 'long-drop'
☐ Another kind of toilet: _____

7. Do you have electricity at home? ☐ Yes ☐ No

8. Which of these do you have at home? (**Tick the ones that work**)
☐ Fridge ☐ Paraffin stove ☐ Microwave
☐ Electric stove with oven ☐ Gas stove ☐ Hot plate / 2 plate stove
☐ Open fire ☐ TV ☐ Radio
☐ Computer ☐ Cell phone ☐ Telkom phone
☐ Hi-fi / stereo system ☐ Car ☐ Bicycle

9. Which of these do you have at home? (**You can tick more than one**)

☐ Cattle ☐ Goats ☐ Pigs

☐ Sheep ☐ Chickens or other birds ☐ Vegetable garden or fruit trees

10. How would you describe yourself?

☐ Black ☐ White ☐ Indian ☐ Mixed race (Coloured)

11. Which language is spoken at home most of the time? (**Tick ONE**)

☐ Pedi ☐ Xistonga ☐ English ☐ Zulu

☐ Sotho ☐ Xhosa ☐ Swati ☐ Tshwana

☐ Ndebele ☐ Afrikaans ☐ Venda ☐ Another language

12. Do you go to school in the same neighbourhood in which you live? ☐ Yes ☐ No

13. Which of these activities do you do as part of a sports club or school sports team? (**You can tick more than one**)

☐ Soccer ☐ Running ☐ Basketball ☐ Dancing

☐ Cricket ☐ Swimming ☐ Handball ☐ Netball

☐ Athletics ☐ Hockey ☐ Baseball / softball ☐ Rugby

☐ Gymnastics ☐ Another sport: _____

14. How many times during the past school week did you participate in these? (**Tick ONE**)

☐ I don't participate in sports clubs or school sports teams

☐ 1 time ☐ 2 times ☐ 3 times

☐ 4 times ☐ 5 times ☐ More than 5 times

15. For how long each time? (**Tick ONE**)

☐ Less than 15 minutes ☐ 15 – 29 minutes

☐ 30 – 59 minutes ☐ More than an hour

16. Which of these activities do you do in physical education (PE) class? This includes physical activity that you do in Life Orientation classes. (**You can tick more than one**)

☐ Soccer ☐ Running ☐ Basketball ☐ Dancing

☐ Cricket ☐ Swimming ☐ Handball ☐ Netball
☐ Athletics ☐ Hockey ☐ Baseball / softball ☐ Rugby
☐ Gymnastics ☐ Games ☐ Another activity:

_____

17. During PE classes, do you usually: ☐ Sweat and breathe hard, like when running fast

(**Tick ONE)** **OR** ☐ Breathe hard, like when walking quickly

18. In the past week (7 days), what activities did you do after school? (**Tick ALL that you do**)

☐ Playing games ☐ Running ☐ Dancing
☐ Bicycling ☐ Swimming ☐ Sports like soccer or netball with friends
☐ Doing chores at home, such as chopping wood, carrying water, cleaning, sweeping
☐ Another activity: _____

19. How many times in the week do you do these activities? (**Tick ONE**)

☐ 1 time ☐ 2 times ☐ 3 times
☐ 4 times ☐ 5 times ☐ More than 5 times

20. For how long do you participate in these activities? (**Tick ONE**)

☐ Less than 15 minutes ☐ 15 – 29 minutes
☐ 30 – 59 minutes ☐ More than an hour

21. How do you usually get to school? (**Tick ONE**)

☐ Walk to school ☐ Bicycle to school
☐ Take a taxi to school ☐ Take a train to school
☐ Take a bus to school ☐ Go in a car
☐ Bicycle and take a taxi/bus/train ☐ Walk and take a taxi/bus/train
☐ Another way: _____

22. If you walk or bicycle, How long does it take you to get to school? (**Tick ONE**)

☐ Less than 10 minutes ☐ 10-30 minutes
☐ 31-60 minutes ☐ More than 60 minutes

23. If you walk or bicycle, how fast do you normally go? (**Tick ONE**)

☐ I go slowly so there is no change in my breathing

☐ I go quickly which makes me breathe harder than normal

☐ I go very quickly, sweat a lot and breathe harder than normal

24. In the last school week, how did you spend your break time besides eating food? (**Tick ONE**)

☐ I sat down (talking, reading, doing schoolwork)

☐ I stood around or walked around

☐ I ran or played a little bit

☐ I ran and played hard most of the time

25. On a normal weekday, how long do you watch TV or sit and listen to the radio? (**Tick ONE**)

☐ Less than 30 minutes per day ☐ 30-59 minutes per day

☐ 1-2 hours per day ☐ More than 2 hours per day

☐ I don't watch TV or sit and listen to the radio during the week

26. On a normal day on the weekend, how long do you watch TV or sit and listen to the radio?

(**Tick ONE**)

☐ Less than 30 minutes per day ☐ 30-59 minutes per day

☐ 1-2 hours per day ☐ More than 2 hours per day

☐ I don't watch TV or sit and listen to the radio on the weekend

27. On a normal weekday, How many minutes do you spend on the computer? (**Tick ONE**)

☐ Less than 30 minutes per day ☐ 30-59 minutes per day

☐ 1-2 hours per day ☐ More than 2 hours per day

☐ I don't spend any time on the computer

28. On a normal day on the weekend, how many minutes do you spend on the computer? (**Tick ONE**)

☐ Less than 30 minutes per day ☐ 30-59 minutes per day

☐ 1-2 hours per day ☐ More than 2 hours per day

☐ I don't spend any time on the computer

Please answer the questions below; remember **there are no right or wrong answers,** just what you think! Place a tick in the box marked either true, false, or not sure.

29. You are doing physical activity when you are playing sport, running or going to the gym	True	False	Not sure
30. You are doing physical activity when you play games with your friends, e.g. skipping, other traditional games	True	False	Not sure
31. Walking is physical activity, e.g. walking to / walking home from school	True	False	Not sure
32. Doing chores at home, e.g. fetching water, chopping wood, is physical activity	True	False	Not sure
33. Dancing is physical activity	True	False	Not sure
34. It is important to do physical activity in order to keep my body healthy	True	False	Not sure
35. I should do at least 30 minutes of physical activity every day	True	False	Not sure
36. Boys are better at physical activity than girls	True	False	Not sure
37. Girls should not sweat and breathe hard when they do physically activity	True	False	Not sure

For the questions below, place a tick in the box marked **Yes OR No.**

38. For me, it is too dangerous to walk to school or play outside	Yes	No
39. For me, it is too far to walk to school	Yes	No
40. I do not have enough time to do sport or play games with my friends	Yes	No
41. I am not allowed to stay after school to play sports	Yes	No
42. I have fun when I am doing physical activity	Yes	No
43. I can do physical activity that makes me sweat and breath hard	Yes	No
44. I get tired very quickly when I do physical activity	Yes	No
45. In the last year, did you and your family go to events held at the school for physical activity, e.g. a fun run / walk?	Yes	No
46. In the last year, did any of your teachers talk to you about physical activity or exercise or give you information to take home to your family?	Yes	No
47. In the last year, did you watch anything on TV or hear anything on the radio about physical activity or exercise?	Yes	No
48. In the last year, did you read anything in the newspaper or in a magazine about physical activity or exercise?	Yes	No

Thank you for completing the questionnaire!

APPENDIX TWO

Physical activity teacher questionnaire

Introduction: The following questions and measurements are designed to assess behaviours, knowledge, perceptions, and practices regarding physical activity in teachers in primary school teachers.

Part 1. Demographic and professional information

These questions will tell us more about you. Your answers are confidential.

1. What is your birth date? 2. What is your age? 3. What is your gender?

_____/_____/_____ _____ ☐ ☐
Month Day Year Years Male Female

4. Where did you receive your teacher training? (Tick whichever apply)
   ☐ teacher training college
   ☐ university or technical college
   ☐ post university degree qualification or diploma
   ☐ other _____

5. Which grades are you qualified to teach? (Tick whichever apply)
   ☐ primary school ☐ grades 1-3 ☐ grade 4 ☐ grade 5 ☐ grade 6 ☐ grade 7
   ☐ senior school ☐ grades 8 ☐ grade 9 ☐ grade 10 ☐ grade 11 ☐ matric

6. Which subjects are you qualified to teach? (Tick whichever apply)

☐ science	☐ geography
☐ arts	☐ physical education
☐ maths	☐ life orientation
☐ history	☐ languages
☐ technology	☐ English
☐ other _____	
☐ other _____	

7. For how many years have you been teaching? _____ years

Part 2. Physical activity and the curriculum

8. Do you feel that physical activity and nutrition receive sufficient attention for learners in the school curriculum?
   ☐ yes ☐ no ☐ not sure

9. Do you feel that you have sufficient professional training to teach learners about physical activity and nutrition in the school curriculum?
   ☐ yes ☐ no ☐ not sure

10. Do you believe that physical education is best positioned for learners in the life orientation portion of the curriculum?
    ☐ yes ☐ no ☐ not sure

11. Do you believe that opportunities for learners to be physically active or to participate in sports are limited in your setting or environment?
☐ yes ☐ no ☐ not sure

12. Examine the list of potential barriers to physical activity below. Please tick those that you believe may apply to learners within your school and community; add any that are not listed that apply.

☐ physical education is not an academic subject and therefore not prioritized by the school
☐ the school lacks facilities for physical activity and sport
☐ the school lacks equipment for physical activity and sport
☐ the community environment is not safe for physical activity, sport and play
☐ the children are not adequately nourished to play vigorous activity and sport (do not eat enough)
☐ the children have commitments at home after school and therefore cannot play or do sport
☐ the children have to walk long distances, and therefore do not require more activity than they already get
☐ the children do not have sufficient funds for shoes or kit for sport or activity
☐ other _____
☐ other _____
☐ other _____

Part 3. Personal lifestyle risk profiles (physical activity, nutrition, smoking etc.)

Physical activity Questionnaire

Instructions: We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions are about the time you spent being physically active in a usual week. They include questions about activities you do at work, to get from place to place, as part of your house and yard work, and in your spare time for recreation, exercise or sport. Your answers are important. Please answer each question even if you do not consider yourself to be an active person.

In answering the following questions,
♦ **vigorous** physical activities refer to activities that take hard physical effort and make you breathe much harder that normal.
♦ **moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder that normal.

In answering the questions, think about *only* those physical activities that you do **for at least 10 minutes at a time.**

13a On how many days in a usual week do you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?
____ days per week ☐ None *(Go to question 14a.)*

13b How much time in total would you usually spend on one of those days doing vigorous physical activities*?* ____ hours ___ minutes

14a On how many days in a usual week do you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.
____ days per week ☐ None *(Go to question 15a.)*

14b How much time in total would you usually spend on one of those days doing moderate physical activities*?* ____ hours ___ minutes

15a On how many days in a usual week do you **walk** for at least 10 minutes at a time? This includes walking at work and at home, walking to travel from place to place, and any other walking that you might do solely for recreation, sport, exercise or leisure.

____ days per week ☐ None *(Go to question 16a.)*

15b How much time in total would you usually spend walking on one of those days*?*

____ hours ___ minutes

15c At what pace do you **usually** walk? Do you walk at:

☐ a **vigorous** pace, that makes you breathe much harder than normal;
☐ a **moderate** pace that makes you breathe somewhat harder than normal; or
☐ a **slower** pace where there is no change in your breathing.

16a The last questions are about the time you spend sitting each day while at work, at home, while doing course work and during leisure time. This includes time spent sitting at a desk, visiting friends, reading or sitting or lying down to watch television.

How much time in total did you usually spend *sitting* on a **week day?**
____ hours ___ minutes

16b How much time in total did you usually spend *sitting* on a **weekend day?**
____ hours ___ minutes

Lifestyle habits

17a. Do you currently smoke any tobacco products such as cigarettes, cigars, snuff or pipes?

☐ No, I have never smoked
☐ No, but I used to smoke before
If no, how many years since you stopped smoking? _____yrs
☐ Yes, I am a current smoker
If yes, how many years have you been smoking? _____yrs

17b. On average, how many of the following items do you smoke each day?

	Number per day
Manufactured cigarettes	_____
Hand-rolled cigarettes	_____
Pipes full of tobacco	_____
Cigars/cheroots/cigarillos	_____
Snuff	_____
Other (specify) _____	_____

18. If you do smoke, do you wish to stop smoking? Choose the option that best reflects your circumstances.

☐ I don't currently smoke.
☐ I am an occasional or social smoker but I will try to give up in the next year.
☐ I am an occasional or social smoker and to be honest I won't try to give up in the next year.
☐ I am a heavy smoker but I will try to give up in the next year.
☐ I am a heavy smoker and to be honest I won't try to give up in the next year.
☐ I don't know.

19. In the past year, how often have you had at least one alcoholic drink, such as beer (including traditional beer), wine, spirits, fermented cider, punch or mixed drinks?

☐ 5 or more days per week

☐ 1-4 days per week
☐ 1-3 days per month
☐ < 1 per month

20. When you do drink alcohol, how many drinks do you have on average, per occasion?
_____ Number of drinks

21. What do you think of your drinking habits? Choose the option that best reflects your own circumstances.

☐ I don't drink alcohol at all or if I do, it's only occasionally and in moderation.
☐ I drink in moderation at weekends.
☐ I drink fairly regularly but almost always in moderation.
☐ I drink fairly regularly and sometimes or often to excess.
☐ I drink fairly or very regularly and I will try to go easier on alcohol over the next year.
☐ I drink fairly or very regularly and to be honest I won't try to reduce my alcohol intake in the next year.
☐ I don't know.

22. How many servings of fruit and vegetables do you eat on a usual day?

Examples of Serving size:

Fruit: 1 small to medium fresh fruit (± the size of a tennis ball or two golf balls); ½ cup canned fruit; ½ cup (150ml) fruit juice; ¼ cup dried fruit

☐ <2 serves per day
☐ 2-3 serves per day
☐ 3-4 serves per day
☐ 4-5 serves per day
☐ 5-6 serves per day
☐ 6-7 serves per day
☐ 7-8 serves per day
☐ >8 serves per day

23. On how many days of the week do you eat fruit and vegetables? _____ days per week

24. Do you eat a healthy diet? Choose the option that best reflects your own circumstances

☐ I eat fresh fruit and vegetables daily, and only eat unhealthy foods very occasionally or not at all
☐ I maintain a good balance in my diet by eating foods like fresh fruit and vegetables but I also eat unhealthy foods a fair amount
☐ I don't eat enough healthy foods like fresh fruit and vegetables but I intend to get a better balance in my diet over the next 12 months
☐ I don't eat enough healthy foods like fresh fruit and vegetables and I can't see that changing over the next 12 months
☐ I don't know

These are some questions about the foods that you eat. There are no right or wrong answers so please feel free to give us your information as it is.

25. Which of the following do you **USUALLY** eat? (*Mark one per column)*

	None.....☐
Chicken / Poultry	**Red Meat**
With skin .....☐	Fatty meat.....☐
Without skin .....☐	Lean meat.....☐

None .....☐

Spread: (Butter/ Margarine)

Butter .....☐
Hard margarine (brick) .....☐
Soft margarine (tub) .....☐
None .....☐

Milk / Milk Products

Full cream .....☐
2% or low fat .....☐
Skim / fat free.....☐
Blends.....☐
None .....☐

How often do you USUALLY eat the following?

Fried foods, e.g. chips, fish, potatoes, doughnuts, eggs

Occasionally / never .....☐
Weekly (at least once a week) .....☐
Daily.....☐

Chips, e.g. Simba chips

Occasionally / never .....☐
Weekly (at least once a week) .....☐
Daily.....☐

Processed meat, e.g. polony, viennas, meat pies, sausage rolls

Occasionally / never .....☐
Weekly (at least once a week) .....☐
Daily.....☐

Do you usually eat your food very salty, lightly salted or not salted?

Very salty .....☐
Lightly salted.....☐
Not salted.....☐
Don't know .....☐

Do you usually add salt or Aromat/Fondor to your serving of food?

No, I never add Salt/Aromat…….☐
Yes, but I taste first and then add.....☐
Yes, even before I have tasted my food….☐
Don't know……..☐

Do you eat salty snacks more often than three times per week (Such as chips, niknaks, salted peanuts, salty biscuits, biltong, dried sausage, dried fish)?

Yes .....☐
No .....

26. Do you know your present weight? _____ kg

27. Do you know your present height? _____ cm or _____ feet/inches

28. Are you satisfied with your present weight? *(Choose one)*

☐ Happy or satisfied

☐ Somewhat happy or satisfied

☐ Unhappy or unsatisfied

29. Would you describe yourself as…? *(Choose one)*
☐ Overweight or fat
☐ Normal weight
☐ Just right
☐ Underweight or thin

30. Are you happy with your current activity habits? Choose the option that best reflects your own circumstances

☐ I try to exercise several times each week.
☐ Generally I exercise once or twice a month but I intend to start doing more from now on.
☐ Generally I exercise once or twice a month and to be honest I can't think that will change in the next year.
☐ I exercise only occasionally or not at all but I intend to start doing more from now on.
☐ I exercise only occasionally or not at all and to be honest I can't think that will change in the next year.
☐ Don't know

31. Would you say that in general your health is
☐ Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor

32. Thinking about your <u>physical</u> health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?

Number of days	

33. Now thinking about your <u>mental</u> health, which includes stress, depression, and problems with emotions for how many days during the past 30 days was your mental health not good?

Number of days	

34. During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?

Number of days	

Thank you for completing this questionnaire!

APPENDIX THREE

RE: The following questions are designed to analyse the school environment and situation within the school.

Situational Analysis of the School Environment

SECTION A. INFORMATION ABOUT YOUR SCHOOL

1. School name _____
2. School address: _____
   _____
   _____
3. Province: _____
4. School principal: _____
5. Total number of learners (Grade R to Grade 7): _____
6. Total number of teaching staff: _____
7: Contact information:
   Phone: _____
   Fax: _____
   Email: _____
8. Is this school a HEALTH PROMOTING SCHOOL with the Department of Health? ❒ YES ❒ NO
9. Key informant for survey: _____
10. Role of key informant in school community: _____

SECTION B: INFORMATION ABOUT PHYSICAL ACTIVITY AND SPORT IN THE TIMETABLE

1. Is the instruction of structured physical activity currently in the weekly timetable?

❒ YES ❒ NO

2. If YES:

How many sessions per week? _____ sessions

How long is each physical activity session? _____ min

What is the cumulative amount of physical activity per week? _____ min/wk

3. Is there break times in the currently weekly timetable?

❒ YES ❒ NO

4. If YES:

How many sessions per week? _____ sessions

How long is each break session? _____ min

What is the cumulative amount of break time per week? _____min/wk

5. Is there lunch times in the currently weekly timetable?

❒ YES ❒ NO

6. If YES:

How many per week? _____ sessions

How long is eachlunch session? _____ min

What is the cumulative amount of lunch time per week? _____ min/wk

SECTION C: INFORMATION ABOUT SPORTING FACILITIES

1. Details of sporting facilities:

❒ Grass fields

Number and specifics: _____

_____

❒ Indoor sporting facilities

Number and specifics: _____

_____

❒ Gymnasium

Number and specifics: _____

_____

❒ Swimming pool

Number and specifics: _____

_____

❒ Netball/basketball/Tennis courts

Number and specifics: _____

_____

❒ Play ground – with or without equipment

Number and specifics: _____

_____

❒ Quad

Number and specifics: _____

_____

❒ Open areas

Number and specifics: _____

_____

❒ Other

Number and specifics: _____

_____

2. Details of sporting equipment present on school property

❒ Rugby balls
❒ Tennis balls
❒ Cricket balls
❒ Basketballs
❒ Whistles
❒ Bibs
❒ Stop watches
❒ Cricket bats/pads
❒ Weight training equipment
❒ Beanbags/hoops
❒ Equipment storage facilities
❒ Soccer balls
❒ Hockey balls
❒ Netballs
❒ Waterpolo balls
❒ Beacons
❒ Skipping ropes
❒ Wickets
❒ Hockey sticks
❒ Gymnastics equipment
❒ Athletics equipment
❒ Tennis racquets
❒ Other, please specify:

_____

_____

_____

4. How many teams per age group does the school have for the following sports (if applicable)

Rugby _____

Soccer _____

Hockey _____

Cricket _____

Tennis _____

Swimming _____

Water polo _____

Athletics _____

Netball _____

Basketball _____

5. What other sports does the school offer?

SECTION D: INFORMATION ABOUT EXTRA-MURAL SPORT

1. Does the school offer extramural sport?

❒ YES ❒ NO

SECTION E: TUCK SHOPS AND NUTRITION

1. Does your school have a tuck shop permanently based on the premises?

❒ YES ❒ NO

2. If YES, is this tuckshop run as a business?

❒ YES ❒ NO

2. If NO, are there vendors available at your school?

❒ YES ❒ NO

3. What is sold at your tuckshop or by vendors?

❒ Fruit juice
❒ Chips
❒ Chocolate
❒ Pies/ hot dogs/ hamburgers
❒ Fresh vegetables
❒ Fruit
❒ Milk
❒ Fizzy drinks
❒ Fried food
❒ Salads
❒ Sandwiches
❒ Sweets

❒ Other, please specify:

_____

_____

F: HEALTH AND HEALTH EDUCATION

1. Does the school have a vegetable garden?

❒ YES ❒ NO

2. Does the school offer health education as part of the Life Skills and Life Orientation programmes?

❒ YES ❒ NO

3. If YES, are the following topics covered during these lessons:

❒ Basic nutrition

❒ The benefits of healthy eating

❒ The benefits of sport and exercise

❒ How to be active

❒ Smoking, alcohol and other irresponsible behaviour

❒ Other, please specify: _____

_____

_____

Thank you for answering this questionnaire!

APPENDIX FOUR

The International Physical Activity and Environment Network (IPEN)
(Adapted for a South African context)

We would like to find out more information about the way that you perceive or think about your neighborhood. Please answer the following questions about your neighborhood and yourself.

Types of residences in your neighborhood

Please circle the answer that best applies to you and your neighborhood.

1. How common are <u>detached single-family residences</u> in your immediate neighborhood?

1	2	3	4	5
None	A few	Some	Most	All

2. How common are <u>townhouses or row houses of 1-3 stories</u> in your immediate neighborhood?

1	2	3	4	5
None	A few	Some	Most	All

3. How common are <u>apartments or condos</u> in your immediate neighborhood?

1	2	3	4	5
None	A few	Some	Most	All

4. How common are <u>shacks</u> in your immediate neighborhood?

1	2	3	4	5
None	A few	Some	Most	All

5. How common are <u>traditional mud houses</u> in your immediate neighborhood?

1	2	3	4	5
None	A few	Some	Most	All

6. How common are <u>houses with walls made of brink and cement</u> in your neighborhood?

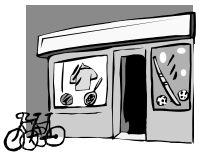
1	2	3	4	5
None	A few	Some	Most	All

7. How common are hostels in your neighborhood?

1	2	3	4	5
None	A few	Some	Most	All

8. How common are vegetable gardens in your neighborhood?

1	2	3	4	5
None	A few	Some	Most	All



Stores, facilities, and other things in your neighborhood

About how long would it take to get from your home to the nearest businesses or facilities listed below if you walked to them? Please put only one check mark (√) for each business or facility.

	1-5 min	6-10 min	11-20 min	20-30 min	30+ min	don't know
example: gas station	1. ____	2. ____	3. √	4. ____	5. ____	8. ____
1. convenience/small grocery store	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
2. supermarket	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
3. hardware store	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
4. fruit/vegetable market	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
5. laundry/dry cleaners	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
6. clothing store	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
7. post office	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
8. library	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
9. elementary school	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
10. other schools	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____

11. book store	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
12. fast food restaurant	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
13. coffee place	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
14. bank/credit union	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
15. non-fast food restaurant	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
16. video store	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
17. pharmacy/drug store	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
18. salon/barber shop	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
19. your job or school	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____

[check here _____ if not applicable]

	1-5 min	6-10 min	11-20 min	20-30 min	30+ min	don't know
20. bus or train stop	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
21. park	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
22. recreation center	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____
23. gym or fitness facility	1. ____	2. ____	3. ____	4. ____	5. ____	8. ____

Access to services

Please circle the answer that best applies to you and your neighborhood. Both local and within walking distance mean within a 10-15 minute walk from your home.

1. Stores are within easy walking distance of my home.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

2. Parking is difficult in local shopping areas.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

3. There are many places to go within easy walking distance of my home.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

4. It is easy to walk to a transit stop (bus, train) from my home.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

5. The streets in my neighborhood are hilly, making my neighborhood difficult to walk in.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

6. There are major barriers to walking in my local area that make it hard to get from place to place (for example, freeways, railway lines, rivers).

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

Streets in my neighborhood

Please circle the answer that best applies to you and your neighborhood.

1. What are the streets in your neighborhood made with?

Cement Gravel Dirt

2. Is there a median line in the street in your neighborhood?

Yes No

3 .Can cars drive on the streets in your neighborhood?

Yes No

The streets in my neighborhood <u>do not</u> have many cul-de-sacs (dead-end streets).

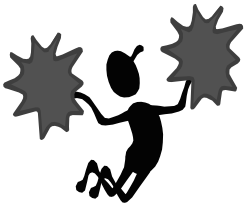
1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

2. The distance between intersections in my neighborhood is usually short (100 yards or less; the length of a football field or less).

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

3. There are many alternative routes for getting from place to place in my neighborhood. (I don't have to go the same way every time.)

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree



You're making great progress……keep it up!

Places for walking and cycling

Please circle the answer that best applies to you and your neighborhood.

1. There are sidewalks on most of the streets in my neighborhood.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

2. Sidewalks are separated from the road/traffic in my neighborhood by parked cars.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

3. There is a grass/dirt strip that separates the streets from the sidewalks in my neighborhood.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

I. Neighborhood surroundings

Please circle the answer that best applies to you and your neighborhood.

1. There are trees along the streets in my neighborhood.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

2. There are many interesting things to look at while walking in my neighborhood.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

3. There are many attractive natural sights in my neighborhood (such as landscaping, views).

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

4. There are attractive buildings/homes in my neighborhood.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

Neighborhood safety

Please circle the answer that best applies to you and your neighborhood.

1. There is so much traffic along nearby streets that it makes it difficult or unpleasant to walk in my neighborhood.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

2. The speed of traffic on most nearby streets is usually slow (30 mph or less).

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

3. Most drivers exceed the posted speed limits while driving in my neighborhood.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

4. My neighborhood streets are well lit at night.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

5. Walkers and bikers on the streets in my neighborhood can be easily seen by people in their homes.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

6. There are crosswalks and pedestrian signals to help walkers cross busy streets in my neighborhood.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

7. There is a high crime rate in my neighborhood.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

8. The crime rate in my neighborhood makes it unsafe to go on walks <u>during the day</u>.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

9. The crime rate in my neighborhood makes it unsafe to go on walks <u>at night</u>.

1	2	3	4
strongly disagree	somewhat disagree	somewhat agree	strongly agree

APPENDIX FIVE

INTERVIEW SCHEDULE WITH EDUCATORS

NAME: _____

SUBJECT/LEARNING AREA: _____

EDUCATORS EXPERIENCE

Do you include physical activity strategies within you lesson?

Yes ☐ No ☐

If yes, is it easy/difficult task to include the intervention strategies within your lessons?

_____

_____

_____

Are you enjoying teaching the activities?

_____

_____

_____

Do you have any recommendations/suggestions to improve the lesson formats?

_____

_____

_____

PHYSICAL ACTIVITY

Do you include physical activity within your lessons?

Yes ☐ No ☐

If yes, how do you strategically include physical activity within your lessons?

_____

_____

_____

What type of physical activities do you do?

_____

_____

_____

Are they enjoying the activities? , explain

_____

_____

_____

How do you think learners respond/ will respond to inclusion of physical activity in their lessons? (change in behaviour)

_____

_____

_____

Do you foresee any challenges in including physical activity during classes?

Yes ☐ No ☐

What challenges do you foresee?

_____

_____

_____

_____

NUTRITION

Do you include health education lessons in your class?

Yes ☐ No ☐

Are the learners aware of healthy food choices?

Yes ☐ No ☐

Do learners carrying water bottles?

Yes ☐ No ☐

LUNCH-TIME ACTIVITIES

What activities are occurring during the lunch breaks?

_____

_____

_____

Are the learners participating playing/ participating in physical activity during lunch time?

_____

_____

_____

GENERAL COMMENTS

_____

_____

_____

_____

_____

_____

APPENDIX SIX

FOCUS GROUP DISCUSSION GUIDELINES

- Warm welcome to all of you grade six parents, Principal/ deputy principal and all teachers present. Firstly, I would like to thank you parents for taking your willingness to participate in this study and taking your time to come here to this meeting. I am looking forward to learn a lot from you as you during this session as we will be sharing ideas, discussing and asking one another questions. I would like all us to feel comfortable to talk openly and fully participate to the discussions.
- It is very important to note that your beliefs, attitude and practise towards physical activity and proper nutritious food choices plays a bigger role towards your children's choices to either adopting good or bad beliefs and practises.

- The purpose of this meeting is to determine your knowledge, practises and attitude and beliefs towards physical activity and importance of your child to participate in physical activities during and after school.

- Following will be the discussions about beliefs, practises and attitude towards physical activity and nutritious food choices.

- What are your thoughts about physical activity?

(Discussion)

- Do you think to be physical activities is beneficial for children and adolescents?

(Discussion)

- Do you think physical activities are only good for children only and/ or elderly?

(Discussion)

- What would you say is the enough time to spend in physical activities a day?

(Discussion)

- What do you understand about nutritious food choices?

(Discussion)

- Do you encourage your child to participate in the extra-mural activities in school?

(Discussion)

- Why do you encourage/ not encourage your child to participate in extra-mural activities in school?

(Discussion)

- To conclude, I would like to thank all participants for your valuable input. Thank you

APPENDIX SEVEN

The impact of a school based physical activity intervention on learners' health behaviour

Information and consent for teachers

Dear teacher

Thank you for showing an interest in this project. Please read this information sheet before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you of any kind and we thank you for considering our request.

The project is being undertaken as the requirement for the masters degree in the disciple of biokinetics, exercise science and leisure studies at the University of KwaZulu Natal.

The purpose of the study is to determine the impact of a school based physical activity and family intervention one learners in a selected township in KwaZulu Natal.

The project is in collaboration with the KwaZulu Natal (KZN) department of Health. The department of health has purposively Claremont, KZN. Grade six learners and their parents, school principals and educators will participate in this study.

Should you agree to take part in this project, you will be asked to answer questions in the semi-structured interview regarding knowledge and attitudes towards physical activity teaching methodologies of physical activity and basic knowledge of balanced and healthy diet. In addition you will be asked to complete the physical activity questionnaire reflecting your knowledge, perceptions, practices concerning physical activity and teaching methods that you used in class weather thy include physical activity or not. You will be asked to attend and participate in the 3 1hour workshops regarding innovative teaching methods that will include physical activity in classes. During the four months of the intervention programme you will be asked to introduce different types of physical activity during your classes with grade six. The intervention sessions will be conducted during the one-hour Life Orientation lesson.

There are minimal risks in this study as you will continue as per normal with your teaching. The only difference will be your teaching methodologies for the physical education component.

The benefits of this study include an increased knowledge gained by learners, educators and principals regarding physical activity and healthy nutritional choices. During and after intervention, you will be more knowledgeable in physical education teaching methodologies and learners will possibly spend more time participating in physical activities during and after school.

You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

Results of this project may be published but any data included will in no way be linked to you. The data collected will be securely stored in such a way that only the researchers will be able to gain access to it. At the end of the project any personal information will be destroyed immediately except that, as in accordance with the University's research policy. Raw data on which the results of the project depend will be retained in a secure storage place for five years, after which will be destroyed by incineration.

If you have any questions about the project, either now or in the future, please feel free to contact the researcher or the supervisor. You may also contact UKZN Biomedical Research Ethics Committee;

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001, Durban, 4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
Email: BREC@ukzn.ac.za

Thanking you

Researcher: Siphamandla Nyawose
University of KwaZulu Natal
Mobile: 082 810 4619
Email address: nyawose.s@hotmail.com

Supervisor: Dr Rowena Naidoo
University of KwaZulu Natal
Tel work: 031 260 8235
email: naidoor3@ukzn.ac.za

Teachers' consent to participate:

Please sign below to provide consent for your participation in the study.

I …… (name of teacher) give informed consent to participate in the above-mentioned study. I have read and fully understand the information about the study.
I understand that my participation in the project is entirely voluntary; there will be no remuneration for participating in this study .I understand that I can stop participating at any stage simply by saying that I would no longer like to be involved in the research study. The data will be destroyed at the conclusion of the project but any raw data on which the results of the projects depend will be retained in secure storage for five years, after which it will be destroyed. The results of the project may be published but my anonymity will be preserved.

Please note that a copy of the signed consent form will be given to you.

Signature of teacher: **DATE:**

……. ……..

Witness: **DATE:**

……. ……

APPENDIX EIGHT

The impact of a school based physical activity intervention on learners' health behaviour

Information and consent for learners

RE: Permission to test the physical fitness levels, and the knowledge, perceptions and practices of school children in grade six toward physical activity and health.

Dear parent / guardian

Thank you for showing an interest in this project. Please read this information sheet before you and your child decide whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you of any kind and we thank you for considering our request.

The project is being undertaken as the requirement for the masters degree in the disciple of biokinetics, exercise science and leisure studies at the University of KwaZulu Natal.

The purpose of the study is to determine the impact of a school based physical activity and family intervention one learners in a selected township in KwaZulu Natal.

The project is in collaboration with the KwaZulu Natal (KZN) department of Health. The department of health has purposively identified Claremont, KZN. Grade six learners and their parents, school principals and educators will participate in this study.

Should you allow your child to part in this project, your child will be asked to participate in the battery of physical fitness that will be conducted by the researcher and other qualified sport sciences volunteers, thus your child will be in safe hands. The fitness tests include standing long jump, 10 x 5m shuttle run, sit ups in 30 seconds and a sit and reach flexibility test. In addition we will be assessing weight and height, to determine your child's body mass index. Your child will be asked to complete a questionnaire about their knowledge, attitude and practices towards physical activity. Your child will be asked to participate in structured physical activities that will be introduced by his/her teacher, for four months of the intervention programme. These intervention sessions will be one hour long and will be conducted during the normal Life Skills teaching and learning. There will be no compensation to your child for participating in this study.

There are minimal possible risks in this study that may include accidental falls, feeling of muscle soreness shortly after or later after the fitness tests. Teachers will always be present teaching and leading the intervention sessions as it will be during the normal teaching and learning Life skills class. The researcher will also be present during the first four sessions. Learners will at all times be supervised to minimise the possible adverse event. In the event of falling or injury, a first-aid kit will be available.
Sessions will include activities that your child will generally take part in during physical education lessons. Activities like running, playing games such as indigenous games and sporting activities will be included.

The benefits of this study include more knowledge gained by learners, educators and principals about physical activity and health nutritional choices. During and after intervention, learners will spend more time participating in physical activities, also after school.

You and your child may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

Tests and questionnaires will be completed again after four months of the intervention programme in both schools.

Your child will be allocated a number and alphabetical code to ensure that confidentiality and anonymity is maintained throughout the study.

Results of this project may be published but any data included will in no way be linked to your child. The data will be secured in such a way that only the researchers will be able to gain access to it. At the end of the project any personal information will be destroyed immediately except that, as in accordance with the University's research policy. Raw data on which the results of the project depend will be retained in a secure storage place for five years, after which will be destroyed by incineration.

If you have any questions about the project, either now or in the future, please feel free to contact the researcher or the supervisor. You can also contact UKZN Biomedical Research Ethics Committee;

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001, Durban, 4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
Email: BREC@ukzn.ac.za

Thanking you

Researcher: Siphamandla Nyawose
University of KwaZulu Natal
Mobile: 082 810 4619
Email address: nyawose.s@hotmail.com

Supervisor: Dr Rowena Naidoo
University of KwaZulu Natal
Tel work: 031 260 8235/0837772813
email: naidoor3@ukzn.ac.za

Parental consent to participate:

Please sign below to provide consent for your child to participate in the study.

I …… (name of parent or legal guardian) give informed consent on behalf of my child …….. (name of the child) to participate in the above-mentioned study. I have read and fully understand the information about the study.

I understand that my participation in the project is entirely voluntary; there will be no remuneration for participating in this study. I understand that I can stop participating at any stage simply by saying that I would no longer like to be involved in the research study. The data

will be destroyed at the conclusion of the project but any raw data on which the results of the projects depend will be retained in secure storage for five years, after which it will be destroyed. The results of the project may be published but my anonymity will be preserved.

Be informed that your child is free to withdraw at any time from the study, without prejudice, if he or she should wish to do so.

Please note that a copy of the signed consent form will be given to you.

Signature of Parent or guardian: **DATE:**

……. ……..

Witness: **DATE:**

……. ……

Assent to participate (child):

I …… (Name of child) agree that I understand what is being asked of me, to participate in this research study. I understand that my participation in the project is entirely voluntary; there will be no remuneration for participating in this study. I understand that I will be asked to complete some questionnaires and to undergo fitness testing (including running, jumping, sit-ups and stretching). I understand that I can stop participating at any stage simply by saying that I would no longer like to be in the research study. This is entirely your choice, and whatever you decide is fine, and the school, your parents, teachers, and the research team will respect your decision.

Signature of child: **DATE:**

……. ……..

APPENDIX NINE

The impact of a school based physical activity intervention on learners' health behaviour

Information sheet for parents

RE: Permission to participate in a physical activity and health behaviour focus group.

Dear parent / guardian

Thank you for showing an interest in this project. Please read this information sheet before you decide whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you of any kind and we thank you for considering our request.

The project is being undertaken as the requirement for a masters degree in the discipline of Biokinetics, Exercise and Leisure Sciences at the University of KwaZulu-Natal.

The purpose of the study is to determine the impact of a school based physical activity and family intervention on learners in a selected township in KwaZulu-Natal.

The project is in collaboration with the KwaZulu Natal (KZN) department of Health. The department of health has purposively Claremont, KZN. Grade six learners and their parents, school principals and educators will participate in this study.

Should you agree to take part in this project, you will be asked to attend focus group sessions once a month for four months. Sessions will include discussion regarding your knowledge and attitudes towards physical activity and the importance of your child to participate in physical activities. Focus group sessions will run for minimum of 30 minutes to maximum of 45 minutes.

There are minimal possible risks in this study. You will only be required to attend the focus group session which will be held at your child's school. Discussions will only take place.

The benefits of this study include more knowledge gained by learners, educators and principals about physical activity and health nutritional choices. During and after the intervention, learners will spend more time participating in physical activities, and possibly also after school.

You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

During the focus group sessions you will be allocated a number and alphabetical code, however confidentiality cannot be guaranteed as there will be other parents/participants in the focus group.

Parents attending focus groups will be financially compensated by R50 per parent per focus group for taking their time and and/or transport to attend the focus groups. There will not be any remuneration for the learners, teachers and principals as this is during school hours and part of the Department of Health's school initiatives programme.

Results of this project may be published but any data included will in no way be linked to you. The data collected will be securely stored in such a way that only the researchers will be able to gain access to it. At the end of the project any personal information will be destroyed immediately except that, as in accordance with the University's research policy. Raw data on which the results of the project depend will be retained in a secure storage place for five years, after which will be destroyed by incineration.

If you have any questions about the project, either now or in the future, please feel free to contact the researcher or the supervisor. You can also contact UKZN Biomedical Research Ethics Committee;

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001, Durban, 4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
Email: BREC@ukzn.ac.za

Thanking you

Researcher: Siphamandla Nyawose
University of KwaZulu-Natal
Mobile: 082 810 4619
Email address: nyawose.s@hotmail.com

Supervisor: Dr Rowena Naidoo
University of KwaZulu-Natal
Tel work: 031 260 8235
Email: naidoor3@ukzn.ac.za

Parent/Guardian consent to participate:

Please sign below to provide consent for your participation in the study.

I …… (name of parent/guardian) give informed consent to participate in the above-mentioned study. I have read and fully understand the information about the study.

I understand that my participation in the project is entirely voluntary; Parents will be financially compensated with an amount of R50 per parent per focus group for taking their time and and/or transport to attend the focus groups. I understand that I can stop participating at any stage simply by saying that I would no longer like to be involved in the research study. During the focus group sessions you will be allocated a number and alphabetical code, however confidentiality cannot be guaranteed as there will be other parents/participants. The data will be destroyed at the conclusion of the project but any raw data on which the results of the projects depend will be retained in secure storage for five years, after which it will be destroyed. The results of the project may be published but my anonymity will be preserved.

Be informed that you are free to withdraw at any time from the study, without prejudice, if he or she should wish to do so.

Please note that a copy of the signed consent form will be given to you.

Signature of Parent or guardian: **DATE:**

……. ……..

Witness: **DATE:**

……. ……

APPENDIX TEN

APPENDIX ELEVEN

Name:					**Subject number:**
☐ **Black** ☐ **White** ☐ **Coloured** ☐ **Indian** ☐ **Other**					
Gender:		**Grade:** ☐ **4** ☐ **5** ☐ **6**			**Age:**
Height:	**cm**	**Weight:**			**kg**
Sit and reach – *best of 2*:		**1.**	**cm**	**2.**	**cm**
Sit-ups (in 30 secs):		**Shuttle run:**			**seconds**
Standing long jump – *best of 2*:		**1.**	**cm**	**2.**	**cm**
Plate tapping:	***sec***	**Flamingo balance:**			**falls**