

Addis Ababa University
School of Graduate Studies

**Factors Affecting Performance of Athletics Training in Short
Distance: The Case of Arada Sub-City Athletics Project in Addis
Ababa Administration**

By
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Addis Ababa, Ethiopia

June, 2015

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Abstract

The purpose of the study was to investigate some factors affecting the performance of Arada-Sub-City athletics training project in Addis Ababa administrative.

Data was collected through questionnaire interview and observation Checklist. 50 respondents participated as the source of data. 45 Athletes, 5 administrative officials were participated in the study. The design of the study was qualitative and quantitative and the descriptive survey method was used. The data collected were organized, analyzed, tabulated and interpreted using simple percentage. As for as major findings of the study are concerned, significant majority of the respondents stated their view that, there is a problem of social relationship between athlete and coach ,Nutritional factors ,Environmental factors and psychological factors. The finding indicates that joining one team without performance affects the training negatively, non

CHAPTER ONE

INTRODUCTION

This chapter deals with the background of the study ,the statement of the problem, objective of the study, significance of the study, delimitation, limitation of the study, definition of terms as used in the research document and organization of the study.

1.1. Background of the Study

Athletics is an exclusive collection of sporting events that involves competitive running, jumping, throwing and walking; the most common types of athletics competition are track and field, road running, cross country running and race walking. The simplicity of the competition, and the lack of a need for expensive equipments, makes athletics one of the most commonly competed sports in the world. Organized Athletics are traced back to the Ancient Olympic Games from 776 BC, and most modern events are conducted by the member clubs of the international Association of Athletics Federations. (Wikipedia, the free encyclopedia) The word athletics is derived from the Greek word "Athol's" meaning "contest" or "task" initially. The term was used to describe Athletics contests in general. i.e. sporting competition based primarily on human physical feats. In the 19th century in Europe, the term Athletics acquired a more narrow definition and describe sport involving competitive running, walking, This definition continuous to be the most prominent one in the United Kingdom and the most of the areas of the former British Empire. Furthermore, foreign words in many Germanic and Romance languages which are related to the term Athletics also have a similar meaning. (Wikipedia, the free encyclopedia) Since its foundation in 1912, the international governing body for Athletics has been the international association of Athletics Federation (IAAF). It was initially known as the International Amateur Athletics Federation but changed later its name to reflect towards professionalism in the late 1970s. The IAAF currently has 213 member nations and territories, which are divided into six continental areas (or area associations), that includes Asia, Africa, Europe, Oceania, North America and South America. From the six continental areas of Athletics associations one of the continent is Africa. So, the confederation of African Athletics (CAA) was founded in 1973 and the confederation of African Athletics will hold a key role with the international association of

Athletics federation for the development of Athletics in Africa. (<http://www.webcaa.org>) The sports within Athletics do not have their own independent governing bodies at either international or continental level and, instead, all falls under the Athletics authorities. (Wikipedia, the free encyclopedia) Although the exact roots of Ethiopian Athletics cannot be retraced back accurately, it is widely believed that the sport was extensively practiced in schools and military camps before 1897. (<http://eaf.org.et>) Ethiopian first participated at the Olympic games in 1956, and has sent athletes to compete in every summer Olympic games since then, except for the 1976, 1984, and 1988 Games. Ethiopian Athletes have won a total of 38 medals, all in Athletics. National Olympic committee of Ethiopia was founded in 1948. (<http://en.wikipedia.org>) Excellence in Athletics is among the top few subject matter Ethiopia is known for around the world. The reputation started to build back in the day of Abebe Bikilla-who stunned the world by winning the marathon event setting a world record of 2:15:16.2 while running bare foot. Yes running bare foot and it was the first ever marathon Gold medal for Africa. And he become the first Athlete in the world to win back to back Olympic marathon titles when he entered the finish line in 2 hours and 11.2 second at the subsequent Olympic in Tokyo in 1964. Since then, Ethiopia has produced countless hoers heroines. (<http://www.ethiopianmillennium.com>) In order to improve and keep the performance of the Athlete we need to have different performance strategies. William J. Kraemer and Ana L. Gomez (1997) stated that, each athlete brings to the specific sport completion a set of physiological and psychological strategies. A performance strategy includes that attributes that the Athlete brings to the competition, (e.g. body mass, height, muscle fiber type, and anxiety levels). Genetic inheritance, along with training, contributes to the status of the available strategies. How the Athletes uses them or integrates them in a performance dictates the degree of success. Some attributes, such as height cannot be trained. Each sport has a specific set of demands for success based on the characteristics and rules of the game or competition. The determinants of success in each sport have changed as rules have changed in many sports, however, success can build on several attributes once the sports skills are solid in athletics. Most sports have complex demand, One Athlete may succeed using one set of strategies while another succeeds in the same sport using a different set. sports today are a function of genetic in heritage, accomplished sport skills, psychological skills, and physical conditioning. In order to excel, the athlete should bring to his or her sport an entire strategy, which can be enhanced by physical conditioning and by

establishing a solid fitness base for the sport. Thus the basis for elite performance in competition is not a single factor but a combination of many factors coming together. Ultimately, individualized, sport specific strength and conditioning programs can enhance the performance for all athletes./ Arada sub –city was included in Addis Ababa administrative has its own potential in different sport the sub –city was known by football, volleyball basketball and athletics however, the athletics project has its own purpose to be effective. It affected by some factors such as Nutritional, Social, Environmental and Psychological factors performance.

Some information about Arada sub-city athletics project

The arada sub –city includes in 10 sub –city in Addis Ababa administration. It was found above semen hotel around sholla area. even though, it has its own different sub offices in it the sport office was included in this sub offices and it organized in different sport project. One of them is athletics project this athletics projects organized in age and gender around 24 and above 14 but below 18 years in different distance such as:-short, middle and long distance. The Coaches, the administrative commits included in the project.

1.2. Statement of The Problem

As shown in the back ground section, training athletics project development was the most important of trainees performance. As the same time it contributes the club. when the projects improve their status by isolating the factor which affects the performance of athletes. Projects produce quality athletes who are suitable and fit with modern athletes and competence in national level. The training of its project athletics performance development have to be assessed and maintained to a level which can produce competent trainees who are capable of modern athletes, However, country like Ethiopia are in presence and with several factors to improve project training standards and it is mandatory to run well organized and modern training program. In this study the researcher :-

-the contribution of food for enhancement of performance.

-try to make the suitable training environment.

-to improve social relationship between athletes and coaches.

-try to improve psychological treatment.

There are different problems will be included in this study which affect the performance of athletes these are:

Non food availability, weak social relationship, weak psychological treatment unsuitable training site.

1.3. Research Objective

❖ **General objective:-** identify and evaluate the factors which affect the performance of athletes in training.

❖ **The specific objective of the study**

1. To show the availability of good nutrition for building good performance
2. To indicate the importance of social relationship between athletes and coach.
3. To show the influence of unsuitable training environment on performance.
4. To indicate the contribution of psychosocial readiness for performance building.

1.4 Research question

1. Why food is not prepared for the Arada sub city athletics trainees?
2. Why is the coach, the Athletes and concerned body relationship becoming bad?
3. Why is the training environment not suitable?
4. Why the trainee's performance have been affected psychologically?

1.5. Hypothesis of the study

Some hypothesis about the problem

1. Food is not prepared because the sport office of Arada sub city do not have budget for food/skilled man power.
2. The coach athlete relationship is not good because the coach do not consider the athletes equally.
3. The training environment is not suitable because the project do not give more attention for training session.
4. Most of the coach and the trainees do not give attention to advantage and disadvantage of psychological factors like concentration, motivation, self talk and anxiety because lack of knowledge.

1.6. Tools (Instrument)

1.6.1. Nutritional Factor

The researcher wants to investigate factors by preparing closed type questionnaires and interview for administrative officials concerned with nutritional situation.

1.6.2. Social factor

The researcher will decide to study this factor by preparing questionnaires AND observation by the duration of non-verbal approach and by taking short notes. there are about 6 observations which take place in the training session (good, bad)

1.6.3. Environmental factor

The researcher to study this factor took forecasting information of temperature, humidity and altitude from internet website.

1.6.4. Psychological factor

The researcher wants to investigate this factor by preparing questionnaire about each factors such as concentration, motivation, self talk and anxiety.

1.7. Significance of the study

Designing suitable training situation and procedure is needed and producing performance, develop trainees and athletes for the project. Such kind of procedures may be useful for decision making regarding admission and predicting the success of their performance latter. It is essential to study the training of athletics project. In general, the finding of this study usefull for coaches, arada sub-city sport office ,other sport professionals and researchers.

Assess and evaluate the suitability of the training environment to supply appropriate training in order to develop performance.

- important to recognize the factors which affect performance of athletes.
- it makes to have information about factors when coaches are planning to training

1.8. Delimitation of the study

This study has been carried out at arada sub-city athletics project in Addis Ababa with both male and female trainees in short distance runners who are around 14 years old. Factors affecting the performance of athletics training have been studied. The study covers a population of 50 male and 40 female trainees in the project. seems mandatory and invaluable to make study at national level. However, the resource and financial constraints of the researcher has obliged to the study only on arada sub-city athletics project of short distance runners in Addis Ababa administration. The researcher has intended and planned to work with those 50male and 40 female trainees participants in the project. In relation to the researcher interest, competence, financial power and time constraints the study had been delimited only to the issue of the relevancy of training and the suitability of the training and environment to supply appropriate training, the availability of food, social relationship and psychological treatments

1.9. Limitation of the study

The availability of reliable data for any research is an important input for success and achievement of the final outcome of the research work. Any study undertaken for the first time depends to a large extent on previous knowledge, the availability of up-to-date and pertinent research materials and other essential device. The availability of information dealing with this things would help to facilitate and strengthen the study under consideration. It should be noted that it is common to encountered a problem related to data not being easily available and reliable because the instrument used may not themselves be absolutely accurate. Inadequacy of available relevant research material is one of the limitation encountered in this study. In addition to, the scarcity of sufficient books and literature in the area of study was the major short coming that the researcher encountered during the execution of the study.

1.10. Organization of the study

This thesis have five chapters. The first chapter deals with the background of the study, statement of the problem, significance of the study, delimitation of the study, limitation of the study and definition of terms. Chapter two deals with the review of related literature. Chapter three comprises methods and procedure of the study. While chapter four deals with presentation and analysis of the findings. Finally chapter five provides summary of the findings, conclusions reached on and recommendations made on the base's of the conclusions from the data analyzed.

The following key terms were used throughout this document and to ensure clarity of meanings and usages, the terms are defined below.

1.11. The Operational Definitions

Performance:- the act of performing of doing something successfully, using knowledge as distinguished from merely possessing

Affecting:- Moving or stirring the feeling or emotions.

Factor: _ one of the elements contributing to a particular results or situation.

Athletics:- it is oldest form of organized sport which includes running jumping throwing it is track and field sport.

Nutrition:- is the process of nourishing or being nourishing by which living organism assimilates food and uses it for growth and for replacement of tissue.

Relationship:- the way in which two or more people or things are connected or the state of being connected.

Environment:- the surrounding or condition in which person, animals and plants lives or operate

Altitude:- The height of anything above the given planetary reference plane, especially above sea level on earth.

Psychology:- the science of the mind or A mental states and processes.

Knowledge:- the fact of state of knowing the perception of fact or truth, clear and certain mental apprehensio

CHAPTER TWO

REVIEW RELATED LITERATURE

During preparation and actual match day, many factors can or will influence individual players performance, team performance and of course the final result. This paper attempts to describe these various factors involved in determining athletes' performance.

Humans have participated in sport like activites since the earliest days of existence. Perhaps not as sports are viewed currently. But running during a hunting brigade or jumping over a stream involved motions that are still used today. With the introduction of competitive sports. most notably from the Greeks and Romans, Scientists began looking for to improve athletic performance and ultimately, Towin, anatomists and kinesiology professionals have discovered

many internal factors that contribute to sports performance such as muscle fiber type, genetics, and VO2 max. In addition to these, external factor such as playing environment, voluntary alcohol usage, sleep, emotions, and the team environment may also influence sports performance. These specific factors will now be discussed in greater details.

THE MAIN FACTORS OF PERFORMANCE

1. Nutritional factor
2. Social factor
3. Environmental factor
4. Psychological factor.

2.1. Nutritional factor

2.1.1. Nutrition Considerations Athletes

Nutrition plays a significant role in the performance of athletes. In 2009, a comprehensive review of nutrition and athletic performance was published by three governing organizations related to the field of nutrition. Their position on nutrition and athletic performance is stated as follows: “It is the position of the Academy of Nutrition and Dietetics, Dietitians of Canada, and the American College of Sports Medicine that physical activity, athletic performance, and recovery from exercise are enhanced by optimal nutrition. These organizations recommend appropriate selection of foods and fluids, timing of intake, and supplement choices for optimal health and exercise performance.” (Rodriguez N., DiMarco N., Langley S., 2009).

2.1.2. Energy

Adequate energy intake is essential for maximizing performance. Without adequate calorie consumption, the body will use lean muscle tissue for energy during exercise resulting in poor performance, a greater recovery period will ensue, and are diction in strength over time will occur. Not only will performance be compromised without proper energy intake but the athlete would be at risk for nutrient deficiencies that could lead to osteoporosis, anemia and stunted

growth. Many factors influence energy expenditure making it difficult to establish individual energy needs. Age, gender, heredity, body size, the amount of fat free mass (FFM) and type, duration and frequency of exercise all directly influence energy expenditure (Donahoo W., Levine J., Melanson E., 2004). In general, males have higher energy needs than females; additionally, energy needs are greatest in adolescence, decrease with age and increase as greater muscle mass increases. The Dietary Guidelines for Americans (2010) and the Institute of Medicine, have established Dietary Reference Intakes (DRI) for different age, gender and physical activity using Estimated Energy Requirements (EER) equations.

2.1.3. Carbohydrates

Carbohydrates are the most efficient source of energy for the body and are the only source of energy available for anaerobic activity. For this reason, inadequate intakes of carbohydrates will greatly impede sport performance. Additionally, carbohydrates spare muscle tissue, are the primary energy source for the nervous system and help improve and maintain intestinal health (Rosenbloom, C. 2000). The Dietary Reference Intake (DRI) for carbohydrate consumption among adolescent males (ages 14-18 years old) is 100 grams per day (DGA, 2010). The DRI is established as the minimum amount of carbohydrates needed to supply the brain adequate energy to function appropriately. This DRI does not take into consideration the carbohydrates needed to maintain bloodglucose during exercise or the need to maintain adequate skeletal muscle glycogen (Petrie H., Stover E., Horswill C., 2004). The more physically active the athlete is, the more carbohydrates that athlete needs to consume. Additionally, the amount of carbohydrates required is dependent on the athlete's total energy expenditure, gender, type of sport and the environmental condition in which the athlete is competing (Rodriguez N., DiMarco N., Langley S., 2009). The recommended intake of carbohydrates for athletes ranges from 6 to 10 g/kg/day (Rodriguez N., DiMarco N., Langley S., 2009). In general, athletes competing in endurance activities have higher carbohydrate needs than athletes competing in strength activities. It is recommended that an athlete consume no less than 50% of their calories as carbohydrates (Rodriguez N., DiMarco N., Langley S., 2009)

2.1.4. Protein

Protein supports the growth, maintenance and repair of body tissues, particularly muscle. Protein makes up enzymes that are needed to facilitate chemical reactions within the body. Protein helps maintain fluid balance, transport nutrients and helps defend the body against disease (Rosenbloom, 2000). For the athlete, protein plays an essential role for muscle growth and recovery following intense training (Phillips S., Moore D., Tang J., 2007). The DRI for protein for 14 to 18 year old males is 0.73 g/kg/day and the Acceptable Macronutrient Distribution Range (AMDR) for protein is 10-35% of total calories (DGA, 2010). Adequate energy intake is essential to maximize utilization of protein specifically for muscle growth and repair (Rosenbloom, 2000). Both endurance and strength exercises influence the protein needs of an athlete. For the endurance athlete, an increase in protein oxidation during exercise provides the basis for an increased protein need. The recommended protein intake for endurance athletes range from 1.2 to 1.4 g/kg/day. For athletes participating in strength and resistance exercises, adequate protein is essential to support muscle growth and repair. The recommended protein intake for strength athletes range from 1.2 to 1.7 g/kg/day (Phillips S., Moore D., Tang J., 2007). Extensive research has unveiled differences in absorption rates of specific proteins, whey and casein and their relation to sport performance, namely muscle anabolism (Boirie, 1997 & Dangin, 2001). These proteins are both derived from milk but have distinct differences in digestion and absorption. Whey protein is considered a “fast” protein. Whey is a soluble protein that is emptied from the stomach rapidly resulting in large increase in plasma amino acids over a short duration (Boirie, 1997). Whey proteins therefore ideal for stimulating rapid protein synthesis and is most effective when consumed directly before and after a workout (Dangin, 2001). Casein protein is relatively insoluble and clots in the stomach, significantly delaying gastric emptying. Casein is considered a “slow” protein (Boirie, 1997). A continual supply of amino acids are released over time as a result of this delayed gastric emptying creating Dietary protein requirements are increased with exercise and

2.1.5 Fat

Fat provides energy to the body, serves as an abundant energy reserve and protects and insulates internal organs. Fat is a structural component of cell membranes, a precursor to the hormones testosterone and estrogen and is the carrier of fat soluble vitamins A, D, and E (Rosenbloom, C. 2000). The Acceptable Macronutrient Distribution Range (AMDR) for fat

is 20% to 35% of calorie intake (IOM, 2002). Despite the overwhelming evidence of the quintessential role carbohydrates have on exercise performance, researchers have delved into a concept that consuming a high fat, low carbohydrate diet could improve performance to a greater extent. Unlike glycogen, the body has an essentially unlimited storage of energy in the form of lipids (Berning and Steen, 59-72, 2006). Additionally, as the duration of exercise increases, the reliance on lipid energy also increases. The theory is that a high fat diet could improve muscle lipid metabolism during exercise thus sparing muscle glycogen and vastly improving endurance performance (Berning and Steen, pp.59-72, 2006). For example, Vogt and colleagues (2003) found that cycling work output and half-marathon run time were consistent when subjects consumed a high fat diet with a significantly greater contribution of lipids for energy compared to a high carbohydrate diet (Vogt, 2003). Fat provides energy to the body, serves as an abundant energy reserve and protects and insulates internal organs. Fat is a structural component of cell membranes, a precursor to the hormones testosterone and estrogen and is the carrier of fat soluble vitamins A, D, and E (Rosenbloom, C. 2000). The Acceptable Macronutrient Distribution Range (AMDR) for fat is 20% to 35% of calorie intake (IOM, 2002). Despite the overwhelming evidence of the quintessential role carbohydrates have on exercise performance, researchers have delved into a concept that consuming a high fat, low carbohydrate diet could improve performance to a greater extent. Unlike glycogen, the body has an essentially unlimited storage of energy in the form of lipids (Berning and Steen, 59-72, 2006). Additionally, as the duration of exercise increases, the reliance on lipid energy also increases. The theory is that a high fat diet could improve muscle lipid metabolism during exercise thus sparing muscle glycogen and vastly improving endurance performance (Berning and Steen, pp.59-72, 2006). For example, Vogt and colleagues (2003) found that cycling work output and half-marathon run time were consistent when subjects consumed a high fat diet with a significantly greater contribution of lipids for energy compared to a high carbohydrate diet (Vogt, 2003). Another study demonstrated that a 2-week high fat diet significantly improved moderate intensity exercise to exhaustion when compared to a 2-week high carbohydrate diet. Moreover, subjects on the high fat diet demonstrated a significant sparing effect of muscle glycogen during exercise (Lambert, 1994). In contrast, Helge et al., (1996) concluded that consuming a high fat diet is

unfavorable to endurance exercise performance. Over the course of seven weeks, time to exhaustion was 36% greater in subjects consuming a high carbohydrate diet compared to those consuming a high fat diet. Additionally, when subjects consuming a high fat diet were introduced to a high carbohydrate diet, time to exhaustion improved 15% in just one week (Helge, 1996). Langfort et al., (1997) measured the effects of a low carbohydrate, high fat diet on anaerobic exercise. Mean power output and muscle glycogen stores were significantly lower in the low carbohydrate, high fat diet. An in-depth and critical review of the research on a high fat diet compared to a high carbohydrate diet concluded that there is insufficient evidence supporting any benefit a high fat diet could have on sport performance (Jeukendrup, 2003). By virtue of a reduction in muscle and liver glycogen, a high fat, low carbohydrate can be detrimental to performance and should not be warranted (Jeukendrup, 2003). Additionally, the health risks associated with athletes consuming a high fat diet are unknown and additional research should be conducted (Jeukendrup, 2003).

2.1.6 Hydration

During physical activity the body generates heat and responds by sweating to maintain temperature homeostasis. The sweat evaporates and through this physiological process provides a method to maintain temperature homeostasis during physical activity. The water that is lost through sweat needs to be replaced and this makes hydration critical to the athlete's performance and health. Dehydration is defined as a water deficit that is greater than 2% of body weight (Sawka M., et al., (2007). Dehydration reduces both aerobic and anaerobic performance as well as cognitive performance (Rodriguez N. DiMarco N., Langley S., 2009). There are many factors that are involved when calculating an athlete's fluid needs. The environment the athlete is in, the type of clothing the athlete is wearing and the duration and intensity of exercise all influence the rate of sweat lost. In addition, body weight, metabolism and genetics also influence the rate at which an athlete will sweat. In fact, sweat rates can range from 0.3 to 2.4 liters/hour (SawkaM., et al., 2007). The high variability of fluid needs make it difficult to determine a general recommendation of how much fluid the adolescent athlete needs. According to the American College of Sports Medicine, the best way athletes can monitor

hydration status is through urine and/or body weight measurements. First morning urine specific gravity (USG) of less than or equal to 1.020 is considered dehydration. Obtaining a base-line body weight representing dehydration can be done simply by multiple morning body weights. Changes in body weight can reflect water loss through sweat and can be used to calculate fluid replacement needs (Sawka M., et al., (2007).

Prior to exercise, an athlete should consume fluid in the amount of approximately 5 to 7 ml/kg body weight at least four hours before exercise (Sawka M., et al., 2007). Hydrating during exercise is critical to the athlete and, as discussed above, specific recommendations are difficult to generate (Sawka M., et al., 2007). Godek and colleagues (2005) attempted to determine the sweat rate of American football players during exercise. The average sweat rate of sixty-two summer training male football athletes was 2.14 L/hr. The average intake of fluid was 1.42 L/hr. resulting in a 1.58 pound decrease in body mass per hour of activity. Researchers concluded that football athletes have a high sweat rate, particularly during practices in the summer, m13essential to replace what is lost to reduce risk of dehydration and loss in performance (Godek S., Bartolozzi A., Godek J., 2005). After exercise, the athlete should consume between 16 to 24 ounces of fluid for every one pound of body weight lost during exercise (Rosenbloom, 2000). Adolescent athletes may not be consuming adequate amounts of fluids to compensate for what they lose through exercise. Horswill (2005) compared fluid consumption of adolescent athletes with adult athletes in similar exercise conditions. The adult group consumed significantly more fluid compared to that of the adolescent group. Interestingly however, adults had a significantly greater sweat rate as well (Horswill, 2005aking

2.1.7 Before exercise

It is well established that glycogen stores are directly correlated with the intensity and work output of exercise. Endogenous glycogen storage is limited and is most directly affected by the athlete's nutritional status therefore making the timing of nutrition prior to exercise crucial to performance. Traditionally, carbohydrate intake has been at the forefront of research in the realm of improving glycogen storage prior to exercise. However, more recent

research is beginning to surface supporting the consumption of protein and amino acids along with carbohydrates prior to exercise to further maximize sport performance (Kerksick 2008). Kavouras et al., (2004) compared the effects of a high carbohydrate versus a low carbohydrate diet on a 45 minute cycling workout (Kavouras, 2004). The study included it On the first three days, participants consumed a diet consisting of 50% carbohydrates, 25% fat and 15% protein. The next three days, half the cyclists consumed a high carbohydrate diet with at least 600 grams of carbohydrates and 46 grams of fat per day while the other half consumed a low carbohydrate diet with 100 grams of carbohydrates and 245 grams of fat per day. On the seventh day, cyclists performed a 45 minute intense cycling exercise at 82% VO₂max. Muscle glycogen levels were significantly (45%) higher in the high carbohydrate group. Additionally, serum glucose during and after exercise was significantly higher in the high carbohydrate group (Kavouras, 2004). Bussau et al., (2002) studied the effects of a three day carbohydrate load on muscle glycogen levels (Bussau, 2002). Researchers had eight endurance trained male athletes consume a high carbohydrate (10 g/kg/d) diet for three days while abstaining from physical activity. Muscle biopsies on the first and third day were taken and glycogen stores were recorded. Glycogen levels nearly doubled, increasing from 95 to 180 mmol/kg. Researchers concluded that a high carbohydrate diet paired with physical inactivity greatly increases glycogen storage over three days (Bussau, 2002). Researchers at the University of Texas investigated the effects a pre-exercise meal had on muscle glycogen utilization, blood substrates and respiratory exchange ratio (Coyle, 1985). The design consisted of seven male endurance cyclists who completed a cycling test in a fasting and a fed state. The fasting state consisted of a 16-hour fast, prior to exercise. The fed state consisted of a breakfast meal four hours prior to exercise providing 2.0 g/kg carbohydrate and 0.3 g/kg protein. The fed state produced a 42% elevation in muscle glycogen at the start of exercise compared to the fasting state. 15 During the fed state, cyclists also had a 45% greater rate of carbohydrate oxidation. (Coyle, 1985) A recent review summarized the research on pre-exercise carbohydrate consumption on exercise performance (Ormsbee, 2014). A total of nineteen research articles were reviewed of which nine showed an increase in performance, nine showed no increase or decrease in performance and one showed a decrease in performance. The authors concluded that, after reviewing the literature,

consuming a meal abundant in carbohydrates prior to exercise appears to benefit performance (Ormsbee, 2014). The effects of adding protein to carbohydrates prior to exercise on sport performance has been more recently examined. Tipton et al., (2001) studied the effectiveness of consuming amino acids and carbohydrates on protein synthesis before and after resistance exercise. This study consisted of six subjects, three male and three female. On different occasions, each subject consumed an amino acid and carbohydrate completing a one-repetition maximum leg press and leg extension. Researchers concluded that the consumption of the amino acid and carbohydrate solution before resistance exercise has a greater impact on muscle protein synthesis than when consumed after (Tipton K., 2001). Candow D. et al., (2006) compared the effects of consuming soy versus whey protein with carbohydrates before and after exercise over an eight week resistance training (Candow, 2006). The study consisted of twenty-seven young adults, both male and female, who consumed either a whey and carbohydrate solution, soy and carbohydrate solution or a carbohydrate placebo solution before and after resistance 16 exercise. Both the whey and soy groups showed a significant increase in lean muscle mass and strength compared to that of the placebo group. There were no significant differences between the whey and soy groups. These findings suggest that consuming protein and carbohydrates together prior to exercise can significantly improve muscle protein synthesis (Candow, 2006). Coburn et al., (2006) examined the effects of supplementing with whey protein and leucine on performance before and after exercise (Coburn, 2006). The study consisted of thirty-three men who consumed either 20 g of whey and 6.2 g of leucine, 26.2 grams of maltodextrin (placebo) or nothing (control), thirty minutes before and immediately after resistance training for eight weeks. Subjects who consumed the whey and leucine had a significantly greater impact on strength compared to that of the placebo and control. Strength in this group was 34% greater than the placebo at the end of the eight weeks (Coburn, 2006). Based on the most recent research, the International Society of Sports Nutrition recommends consuming 600-1000 grams of carbohydrates daily or 8-10 g/kg/d to maintain maximal storage of glycogen (Kerksick C., 2008).

2.1.8 During exercise

In regards to nutrient timing, it is optimal to consume 1-2 g/kg carbohydrate and 0.15-0.25 g/kg protein, 3-4 hours before exercise (Kerksick C. It is well known that consuming carbohydrates during exercise maintains blood glucose and carbohydrate oxidation, thus directly improving the muscles capacity to do work efficiently (Tarnopolsky 2005). The body can utilize exogenous sources of carbohydrates at a rate of 1.0-1.1 g/min., roughly 60-66 grams of carbohydrates every hour (Jeukendrup, 2000). This rate is limited by the intestinal absorption capacity, consuming carbohydrates at a higher rate can cause gastrointestinal distress whereas consuming less could risk hindering performance (Jeukendrup, 2005). Therefore, nutrient timing during exercise is critical for maintaining and improving performance.

Febbraio M. et al., (2000) analyzed the effect of ingesting carbohydrates before, during or both on exercise metabolism and performance (Febbraio, 2000). The study consisted of seven endurance-trained males who were given a controlled, high carbohydrate (71% of calories) diet 24 hours before a cycling exercise test. The test consisted of 2-hours cycling at 63% of the subjects peak power output, followed by a time trial. Subjects received a total of four supplement regimens, each separated by at least a week duration: a placebo 30 minutes before and during cycling, a placebo 30 minutes before and 2 g/kg of carbohydrates during, 2 g/kg of carbohydrates 30 minutes before and a placebo during, or 2 g/kg of carbohydrates before and during. Carbohydrate consumption before exercise was associated with high plasma glucose levels before the exercise. During the first 80 minutes of exercise, plasma glucose levels declined among all groups similarly. After the 80 minutes, the groups consuming carbohydrates during exercise maintained their blood glucose and those receiving a placebo continued to decline. The groups that received the carbohydrate during exercise had significantly better time trial performance compared to those who did not. A compelling conclusion of this study was that the consumption of carbohydrates before exercise improves performance only when carbohydrate consumption is maintained throughout exercise

(Febbraio, 2000). 18Another study analyzed the effects of consuming carbohydrates during a cycling exercise test (McConnell, 1999). Subjects cycled at 70% VO₂max until volitional fatigue and received either a carbohydrate solution or a placebo before and every fifteen minutes during exercise. Subjects consuming the carbohydrate solution were able to cycle forty-seven minutes longer than compared to the placebo (McConnell, 1999). A similar study examined the effects of consuming carbohydrates on performance during high-intensity intermittent shuttle running (Patterson, 2007). Seven, trained male subjects completed five intermittent variable speed running followed by a run to exhaustion. Subjects consumed either a carbohydrate gel or a placebo before the exercise and every 15 minutes during exercise. Blood glucose levels and the run time to exhaustion were both significantly higher in the carbohydrate group. Researchers concluded that consuming carbohydrates both before and during exercise, improved performance (Patterson, 2007).

Widrick J., et al., (1993) studied carbohydrate consumption during exercise and its effects on muscle glycogen and performance (Widrick, 1993). Endurance trained subjects were required to cycle for 70 kilometers. The subjects were under four different conditions: high muscle glycogen with carbohydrates administered during exercise, high muscle glycogen without carbohydrates administered during exercise, low muscle, 2008).

2.1.9 After Exercise

Net muscle protein balance is the difference between muscle protein uptake and muscle protein breakdown. Exercise has a positive influence on both muscle protein breakdown and, to a lesser extent, muscle protein uptake resulting in a negative muscle protein balance (Phillips, 1999, Pitkanen, 2003 & Tipton, 2013). Striving for a positive net muscle protein balance is essential for promoting muscle hypertrophy and reducing fatigue and soreness that can occur as a result of exercise (Kerksick, 2008). Proper timing of nutrition, specifically amino acids from protein, greatly influences the uptake of muscle protein thus resulting in a more positive net protein balance (Tipton, 2013 & Borsheim, 2001). Borsheim E., et al (2001) analyzed the effects that consuming essential amino acids had on blood essential amino acid

levels and muscle protein balance (Borsheim, 2001). Subjects consumed 6 grams of essential amino acids one and two hours after exercise. Both blood essential amino acids and muscle protein balance increased significantly with the consumption of the supplement. Researchers concluded that there is a dose-dependent effect of essential amino acids on muscle protein uptake (Borsheim, 2001). Another study involving six untrained subjects measured the relationship between resistance exercise and hyper aminoacidemia and their effect on skeletal muscle (Biolo, 1997). Hyper aminoacidemia is a condition in which there is excess amounts of amino acids in the bloodstream. Subjects first went through a rest study in which they received infusions of amino acids without exercise. One to four weeks after the rest study, subjects received an exercise study that consisted of infusions of amino acids directly after exercise. Muscle protein synthesis in the exercise group increased by 291% compared to 141% in the rest group. Furthermore, amino acid transport was 30-100% higher in the exercise group when compared to the rest group. It was concluded that improvement in muscle protein uptake is related to exogenous amino acids is further amplified when consumed directly after exercise (Biolo, 1997). Additional research has demonstrated that adding carbohydrates with protein after exercise can further stimulate muscle protein uptake. After exercise, muscles are highly sensitive to insulin (Holloszy J., 2005). Therefore, increasing insulin secretion by way of consuming carbohydrates with protein can further improve protein uptake into the muscle cells. Moreover, the addition on of carbohydrates improves muscle glycogen re-synthesis (Tarnopolsky, 2005 & Kerksick, 2008). For example, Tipton K., et al (1999) found that when subjects consumed 13.4 g of essential amino acids along with 35 grams of sucrose after exercise, net nitrogen balance changed from -495 mol/mol to 416 mol/mol within 10 minutes of consumption. Researchers concluded that consuming protein along with carbohydrates is an adequate form of metabolism (Tipton, 1999). Consuming protein, specifically essential amino acids, immediately after exercise has been shown to improve muscle protein uptake thus increasing the overall net muscle protein balance. Though the ideal time of consumption and amount of amino acids has yet to be determined, the International Society of Sports Nutrition recommends consuming 6-20 grams of essential amino acids along with 30-40 grams of carbohydrates within three hours after exercise (Kerksick, 2008).

2.2. Social factor

2.2.1. Training Factors

It is perhaps not surprising that high levels of training or practice are required to attain expertise. Research on skill development clearly supports the relationship between training/practice and skill acquisition. Moreover, previous research has identified general rules that outline the progression from novice to expert in a given domain. These include the “10-year rule” (Simon and Chase, 1973) and the power law of practice (Newell and Rosenbloom, 1981). The 10-year rule. 2 Nurturing sport expertise In a study of expertise in chess, Simon and Chase (1973) indicated that differences between the expert level players (grandmaster player) and lesser skilled players (master and novice players) were attributable to the ability to organize information in more meaningful “chunks” rather than the possession of a superior memory capacity. Based on this finding, the authors suggested that inter-individual variation in performance could be explained by quantity and quality of training. Since then, there have been no reliable differences found between expert and novice performers on static, physical capacities such as visual acuity, reaction time, or memory. However, consistent differences for domain-specific information-processing strategies have been identified, thus suggesting that these differences were the result of training or experience. Singer and Janelle (1999) summarized the characteristics that distinguish the expert as follows: 1. Experts have greater task-specific knowledge. 2. Experts interpret greater meaning from available information. 3. Experts store and access information more effectively. 4. Experts can better detect and recognize structured patterns of play. 5. Experts use situational probability data better. 6. Experts make decisions that are more rapid and more appropriate. Evidence from perceptual/cognitive sports examined to date implies that in domains where experts and non-experts are distinguished by domain-specific, information-processing abilities, these skill differences are better accounted for by interher

2.2.2 Social Support and Physical Activity

Previous studies have examined the effect of social support either on physical or acculturative stress. Social support is an important resource in social environment to mediate the relationship between psychological and physical problems; people with low social support are likely to have stressful life conditions, and the lack of social support causes their psychological symptoms and physical disease (Schaefer, Coyne, & Lazarus, 1981). Social support is defined as the comfort, assistance, well-being, and information that individuals receive from formal or informal contacts with societal organization or the other people (Cohen, Underwood, & Gottleb, 2000; Lox, Martin Ginis, & Petruzzello, 2006; Wallston, Alagna, DeVellis, & Devellis, 1983). While social support has been examined from a one-dimensional perspective, there is increasing evidence that the construct is comprised of multiple dimensions (e.g., Lox, Martin Ginis, & Petruzzello, 2006). Given that the multidimensional approach provides a more complete picture of social support, I review that literature and its affe22T

Types and Sources of Social Support

Schaefer et al. (1981) examined three types of perceived social support, including emotional, informational, and tangible support, and their relation to physical health status in a sample of 100 men and women 45-64 years old. The result explained that all the variables of social support have a positive effect on physical health. Wallston and colleague's review (1983) reor types of social support contribute to different outcomes in physical health. Chogahara (1999) surveyed social influences in a multidimensional scale on physical activity in a sample of 479 adults aged 55 and older. This study was focused on three resources of support including family, friend, and health expert and three types of support containing companionship, esteem, and informational support. The findings showed that types of social support have different impacts on physical activity of the old. For example, friends in companionship had a higher effect on physical activity of old adults than did family and health experts in companionship support. These studies are consistent with the observed relationship between social relationships and health in the study by Cohen et al. (2000). This study indicated that both the sources and types of emotional, informational, and instrumental support differently influence health risk, recovery from physical illness, and behaviors for health such as exercise, diet, and smoking. For example, beneficial

information plays a major role in health behaviors related to health-risk situation in that exercise members could provide people with information medical services, food, and risk factors for health ding appropriate program son acculturation stres²³Recently, Lox et al. (2006) examined social influence on exercise. Their work focused on four sources of support- family members including parents, exercise partners, exercise class leaders, and physicians, and particular five types of support- instrumental, emotional, informational, companionship, and validation support. This study indicated that different sources of support differently influence behaviors of exercisers. s and physical activity²³ Recently, Lox et al. (2006) examined social influence on exercise. Their work focused on four sources of support- family members including parents,

2.2.3. Instrumental support

Involves tangible and practical assistances (e.g. spotting equipment at the gym, driving to exercise class, or babysitting). Emotional support provides exercisers with encouragement, comfort, and praise to enhance the levels of physical activity. Informational support involves appropriate program suggestions, directions, and advice from family members, friends, fitness experts or health practitioners. Companionship support provides exercisers with the availability of people such as family, friends, or exercise members. Validation involves the evaluation of exercise process which confirms feelings, experiences problems, and health status compared with other exercisers. Robbins, Stommel, and Hamel (2008) investigated the relationship between social support and physical activity with regard to age and gender differences in a sample of 105 boys and 101 girls. This study was also focused on different sources of support (e.g. family members, peers, gym teachers, coaches) and forms of support (e.g. encouragement and transportation). The findings showed that boys and girls receive different supports from family members according to age and gender. For example, older girls perceive peers, gym teachers, and coaches as more important sources of social and encouragement are strongly related to increase in the levels of physical activity support than family member.

2.2.4. Social Support and Acculturative Stress

The importance of social support has been emphasized with respect to the sources of social support as well as different types of social support. Schaefer et al. (1981) investigated three types of perceived social support such as emotional, informational, and tangible support related to stressful life events in a sample of 100 men and women 45-64 years old. The findings showed that emotional and tangible supports have to reduce depression and informational support is related to positive morale. Alvan, Belgrave, and Zea (1996) examined the types or sources of social support related to stress in a sample of 77 Latino College students. The finding revealed that emotional support from friends is more helpful than family when they have difficulties in academic adjustment and face racism. Choi (1997) investigated the relationship between four types of social support (e.g. belonging, emotional, tangible, and self-esteem) and five types of acculturative stress (e.g. family/cultural, immigration, marital, occupational/economic, and parental) in a sample of 271 Korean immigrants. The finding support buffers acculturative stress and decreases depressive symptoms both in men and women. Also, it showed that tangible and self-esteem support help reduce acculturative stress for women. Finch and Vega (2003) explained the relationship between acculturative stress and social support on physical health in a sample of 3012 Mexican-origin adults. They found that both instrumental and religious types of social support owed that s. moderate the level of discrimination as acculturative stress on self-rated health. Lee, Koeske, and Sales (2004) investigated the role of sources and types social support on both acculturative stress and mental health. They concluded that family as a source of social support does not serve as a buffer compared with friendship, but both emotional and practical types of social support play a major role in stressful symptoms. Ye (2006) surveyed the relationship between acculturative stress and interpersonal social support related to online use in ethnic social groups with a sample of 112 Chinese international students. The study disclosed that these students with high amounts of emotional and informational support from online ethnic groups have less acculturative stress such as negative feelings, perceived discrimination, and hatred excluding fear social innate abilities.

2.2.5. Adolescents

Adolescents could develop some kinds of sensitive feelings, which may impact on their health if they do not get adequate social attention from others. They may become involved in an unfortunate situation that makes them feel overwhelmed or awkward. The adolescent is still developing, could easily experience some strain to their emotion if no help is immediately available. Anxiety and depression are two main psychological disorders that often can be seen among the adolescents.

2.2.6. Family and Peer Support

For adolescents, family support is the most important element in their lives. As part of their growth experience, adolescents usually expect a lot of things from their parents. Inadequate support from the parents will likely increase the chance of getting depression among adolescents who get into unfortunate situation with their parents. This occurs because adolescent usually become confused when they expect to get plenty of help and positive reinforcement from their parents, but it does not happen (Stice, Ragan, & Randall, 2004).

Beside family support, peer support also is very important factor for adolescents. Children can expect a lot from their friends. Peer support can be considered as an alternate method of getting social support if the adolescents receive inadequate attention from their parents. This social support method is not as reliable as family support because young children could easily withdraw from their own friends if they become depressed. Another problem arises in this area, when the depressed students isolate themselves from public gatherings. This would prevent those suffering adolescents from getting any social support at all (Stice et al., 2004). Receiving social support is very essential for adolescents to become successful with them and achieve a satisfactory level at school.

2.2.7. Gifted Adolescents

Gifted adolescents also can encounter plenty of problems if they do not get adequate social support. In some cases, intelligent students are sent to residential schools that offer special programming for students who are gifted in math and science. Oftentimes, the family support would be severely limited for those adolescents, because the residential school usually lies far away from home. This kind of schooling is a totally new experience for gifted students, because

they are living in the dormitory. Normally, students would experience the dormitory living for the first time when they go to college. At those ages, students are looking forward to seeking independence from their parents. This usually leaves a hole for those adolescents with reduced social support, whereas they have to rely on some people from the residential school (Dunn, Putallaz, Sheppard, & Lindstrom, 1987).

Gifted adolescents usually have to rely on counselors and peers at the school. The counselors usually help those students to ease the transition from home to a residential living situation. In contrast to students who attend regular school, there is a better chance for those gifted students to experience emotional well-being, be in a good physical health, and have a good immune system as long as adequate social support can be provided at the school to prevent or lessen the chance for those people from getting depressed (Dunn et al., 1987)

2.2.8. Middle Aged Adults

The importance of social support continues well into adulthood for everyone. It would benefit a person's general health and immune systems, regardless of whether or not they have a lot of stress. For example, the cardiovascular system would function much better in those adults who have better social support (Uchino, Cacioppo, & Kiecolt-Glaser, 1996). The social contact, familial support, and involvement with leisure activities have significantly demonstrated a relationship with lowering of blood pressure. Contact among family members is the best method of reliving stress. The fellowship among friends is adequate, but not as powerful as family. Strangers have a negative effect on reducing blood pressure. In one study cited in Uchino's article, the individual with many siblings and experiencing low stress was found to be the best possible combination for lower.

2.3. Environmental Factors

2.3.1. Environment condition and training

Weather is the one omnipresent variable in sport. From unexpected windstorms in a cycling race, to a malfunction air conditioning system that renders a basket ball gymnasium insufferable, athlete in every sport must train and compete in less-than-desirable environmental

condition, success in completion will often depend on how seamlessly the athlete was able to incorporate anticipated climate and other factors into everyday training Routines.

Climate, weather, and the environment condition are term commonly used in describing various external impacts on sporting events and athlete, each word has a distinct and separate meaning from the others. Climate is the recoding and tabulation of weather data over a period of this time. This factor is used to determine the climatic regions of earth, those place that are said to share a common pattern of weather. Weather is the state of atmosphere at a given place of earth at particular time weather includes the temperature, the moisture (both as a percentage in the air and as the type and severity of rain) wind, cloud cover, the presence of phenomena such as storms, and barometric pressure readings. Weather by its nature is an indication of present atmospheric events or forecasted events in the short time.

Environment condition is the term with broadest meaning in a sport context. The environment may be any outdoor or indoor condition that potentially impacts on performance. Environment will include prevailing on conditions, the physical nature of the venue , such as topography or altitude, as well as man-made such as pollution, traffic that impacts on event such as cycling, or noise, such as stadium noise as America marathoner Alberto Salazar humorous observed prior to the 1984 Los. Angeles Olympic race, he varied his training from his training from his usual 100 mi (160 km) Per weeks or more on the roads, to running in place in his garage with his automobile engine running the door closed to better initiate the famous los Angeles smog the runners would encounter on the Olympic race course. The ability of an Athlete to overcome environment conditions is closely tied to the training concept of acclimatization which requires a focused training approach concerning a specific condition that an athlete expects to face in an upcoming competition or event. Acclimatization is rooted in the inherited ability of the human body adapt to its surroundings over time in all circumstances.

Environmental conditions involve one or more different circumstances, as a condition to be faced in regular training or as an anticipated condition that will be encountered at a future time. There are general training principle to be employed to compensate or to overcome each of these environment conditions; some factors are present in only certain types of sports and therefore demand specialized approaches to their resolution environment conditions include warm weather,

cold weather, cold weather, high altitude, rugged, topography , manmade impacts on air quality, wind speed, rain, time zone changes, indoor atmospheric conditions and crowd noise.

Warm weather which is often accompanied by high humidity, is likely the most common adverse environment factor encountered by athletes. Warm weather and humidity are also readily adapted through a gradual introduction of the body to the unaccustomed heat, both day-to-day living in the warmer conditions as well as training. Most heat acclimatization programs suggest training at approximately 50% capacity for the first four to seven days of the program. Most athletes will achieve 75% heat acclimatization within 10 days of commencement, with 100% tolerance within 21 days. All heat training requires a careful attention to hydration (the average adult requires a minimum of 1qt (1l) of fluid replacement per hour in temperature that exceed 75% (24oC) ; heat and humidity will increase the body's production of sweat released as cardiovascular system brings blood closer to the surface of the skin for cooling. Cold weather may be accompanied by snow. Unlike hot weather, which requires the gradual immersion of the athlete into the hostile environment, cold weather conditions require the creation of protective clothing barriers that keep the environment out layered clothing with in an inner polypropylene layer that will wick or direct perspiration away from the skin the lesser the thermal (warming) quality of the skin and the clothing next to it. Training in cold weather is less important to the acclimatization of the body man tan is warm weather work ,cold weather can also present hydration problems as energy generated in the activity and fluid lost to perspiration are less apparent but equally impacts the body.

High altitude is technically any altitude where the oxygen available to the body is less than at sea level; altitudes in excess of 6,500ft (2,000m) are generally considered to present a significant challenge to peak athlete performance. At this altitude, the body is forced to produce a greater number of erythrocytes (red blood cells) to transport oxygen, to attempt to address the oxygen deficit. Many athletes over a three –month period will develop the physiological capacity to achieve a greater oxygen capacity than they could attain at sea level. High altitude training benefits will be retained by the athlete, in decreasing levels for between one to three month after the cessation of the high-level training.

Hilly or rugged topography runners and cyclists-especially those who are accustomed to. terrain –will require specific training Hill training is often accomplished through a combination

of interval work or the use of stationary exercise machines that permit the athlete to adjust the grade and resistance of the workout.

Manmade impacts on air quality, sometimes in concert with high humidity are likely impossible to replicate. Training in heat and humidity is believed to be the safest alternative.

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2.3.3. Exposure Injuries

Exposure Injuries arise in extreme environmental condition. The exposure of the human body to cold weather is commonly defined as air temperature, either alone or in combination with wind, immersion in cold water or the existences of snow and ice is the mechanism for the commonly understood exposure injuries of frostbite and hypothermia.

Exposure to warm temperatures, often in combination significant humidity, can cause heat injuries, including hyperthermia, which has three progressive components: heat cramps, heat cause sun body, a condition arise more commonly, but not exclusively in warm weather environments.

Cold weather is commonly defined as an air temperature off 40oF (4oC) or below, cold weather exposure injuries in athlete usually occur in circumstances when there is a prolonged exposure to the effects of the element in sports such as cross –country skilling or mountain climbing. In these instance even when the participant has taken the precautions as proper clothing and elements. In cold weather conditions, the athlete will be required to produce energy for sport as well as the body generating sufficient energy to remain warm. When the athlete becomes dehydrated due to exertion, or when the thermal (warming) qualities of protective clothing are reduced due to the accumulation of respiration next to the skin, the body will not function at its optimal level. In response to the treat of the cold , the blood vessels constrict and body he at is lost. In such circumstances, when the body temperature falls from its normal 98.6of (37o C) to less than 95oF the body enters into the condition known as hypothermia when it is unable to worm itself, if a victim is not provided immediate care hypothermia is fatal condition,

External factors that may contribute to onset of hypothermia are a previous exposure to cold injury, as well as the use of alcohol in the cardiovascular system.

Hypothermia may also occur in circumstances when the air temperature is not within the cold weather range. When a sailor is subjected to spray from the water, and often more quickly if the victim is fatigued.

Air temperatures in cold weather must be further considered with respect to the wind chill factor, the relationship between wind velocity and actual impact upon the human skin. As a general proposition, the greater the wind velocity, the more pronounced the effect of cold on exposed skin. Exposure of inadequately protected skin to cold air or clouds made more pronounced in its effect due to wind may lead to frostbite, which is freezing of outer skin and the two subcutaneous layers. The most typical body parts to be injured through frostbite are the extremities including nose, ears, cheeks, fingers and toes. When caught at an early stage and the body parts gently warmed in a protected environment the affected areas can be restored; in severe cases, cell death in the tissue (or limb) must be removed.

The mechanism of hyperthermia and its components are tied directly to effects of dehydration on the cardiovascular system. When the fluid levels of the blood stream are correspondingly reduced. Lower blood volumes lead inevitably to an inability of the body to generate energy in response to performance or training requirements in its early stages which are manifested through the symptoms of heat and muscle cramping represents potentially fatal consequences. Sunburn is perhaps the most common exposure injury. It is caused by overexposure to their ultraviolet rays that form a part of sunlight. Individual susceptibility to sunburn is varied; factors such as skin pigmentation, age genetics all play a role. Mild cases of sunburn are generally not believed to be serious by themselves; there is significant scientific study in support of the theory that effects of sunburn are cumulative; prolonged exposure of unprotected skin to the sun is proven cause of skin cancer. Exposure to direct sunlight is proven cause of skin cancer. Athletes who compete in disciplines where they are often exposed to direct sunlight irrespective of temperature, and solar effects are often deceptive when the air temperature is low.

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2.3.4. Hot Environment

As an athlete exerts energy when exercising in hot environments, his or her core temperature will rise greater than if the individual was exercising at a moderate temperature. This effect may be a possible explanation for decreased athletic performance when environmental temperatures continue to rise, due primarily to excessive fluid loss and impaired thermoregulation in extreme environments (Siegel & Laursen, 2012). In warm environments, exercising induces a rise in core temperature, sweating rate, and progressive dehydration (Özgünen et al., 2010). The ability of an athlete to thermo regulate adequately depends on his or her body type. Athletes with a smaller body size will produce and store less heat than their heavier counterparts (Marino et al., 2000).

When a player exercised in an environment that created a core temperature greater than his or her accepted body temperature, the player's body innately anticipated an undesirable rise in core temperature. To counteract that response, the player slowed down before a critical temperature was reached in an attempt to forego a possible crisis should the critical temperature be exceeded. In this way, the effect of hot temperatures caused an athlete to show a decrease in performance by about 2-3% in order to account for a possibly dangerous rise in core temperature (Dugas, 2010). Performance reduction was confirmed in another study in which soccer players covered 15% less distance when the combination of air temperature and water vapor pressure created a perceived environment of 49°C (Özgünen et al., 2010).

In an attempt to combat this phenomenon, researchers have investigated the effect of pre-cooling an athlete before performance. The idea of pre-cooling is to lower an athlete's body temperature purposely in order to increase the time it will take for the athlete to reach his or her critical temperature, allowing improved performance and less stress on the body from heat (Wegmann et al., 2012). Common methods of pre-cooling include ice baths, ice jackets, and ingestion of cold water. A review of pre-cooling methods, showed that the effects of pre-cooling have consistently shown an enhancement in performance under hot weather conditions (Siegel & Laursen, 2012).

However, playing in dry, hot weather does not present the added problem of humidity. In hot and humid conditions, the ability of the body to extract heat through sweating is impaired because sweat cannot evaporate off the body. Hot and humid environments are characterized by temperatures greater than 18°C and when the amount of water vapor in the air exceeds the ability

of water to be evaporated from land surfaces back into the atmosphere (Hue, 2011). This may hinder the body's ability to thermo regulate, especially in endurance events. Humid environments also affect an athlete when swimming, even though he or she is submerged in water. The silicone cap that is typically worn during competition places stress on the hypothalamus, which is in charge of sudation, by not allowing body heat to escape because the head is covered.

When the process of removing heat from the body is interrupted, overall performance is decreased as core temperature rises (Hue & Galy, 2012).

2.3.5. Cold Environment

Just as the hot environment can negatively impact performance, exercising in the cold environment has been found to influence performance as well. One major concern of exercising in the cold is the effect cold air has on the pulmonary system.

Exercised induced bronchospasm can lead to a higher ventilation rate due to the constriction of the airways as a result of the dry and cold air being breathed in. This leads to a higher exertion and a decrease in performance (Lindberg, Malm, Hammarström, Oksa, & Tonkonogi, 2012). Unlike in warm environments, heart rate decreases in cold weather, due to the body's attempt to retain heat through vasoconstriction (Lindberg et al., 2012).

The nerve conduction decreases which in turn decreases the electrical impulses at the senatorial node, the heart's pacemaker (Wilmore, Costill, & Kenney, 2008). This can create inaccurate intensity level reading if athletes are trying to reach a certain heart rate, in which case studies suggest that they would be exercising at a greater intensity in the cold compared to normal temperatures when trying to reach the same heart rate. This extra exertion leads to decreased performance (Nimmo, 2005).

Cold wind also plays a role in the decrease in body temperature through the process of convection (displacement of heat by motion of gas or liquid). Additionally if the wind is high, heat from the body will be displaced. The clothing an athlete wears can increase body temperature through conduction (transfer of heat from one solid to another). If the athlete's clothes are not appropriate for cold, heat may actually be removed from the body via that method

as well (Wilmore et al., 2008). Prolonged exposure to cold temperatures reduces core body temperature. This is pronounced in athletes with small body size, as heat is able to escape more readily due to less body surface area (Nimmo, 2004). Other factors that are reduced in cold weather are muscle power, force production, muscle shortening velocity, and an increase in fatigue rate (Wilmore et al., 2008).

High intensity exercise is especially affected as many studies have shown a reduction in dynamic performance of about 10% when the temperature of working muscles drops (Sargeant, 1987). VO_{2sub} and VO₂ peak tests in cold environments have also revealed reduced performance in athletes due to multiple factors such as fast-twitch fiber recruitment, thermo genesis, and higher contribution of anaerobic glycolysis (Lindberg et al., 2012). Interestingly, performance was actually increased in marathon runners when the race was performed at a temperature of approximately 14°C. The slightly colder temperatures provided an environment that kept runners from getting too hot, but did not create a detrimental response from the body trying to stay warm (Peiser, Reilly, Atkinson, Drust, & Waterhouse, 2006).

2.4. Psychological factor

Areas such as motivation, confidence, concentration and the will to win all play a part in winning or losing games. A poorly motivated player may underachieve whereas an over motivated player can become a weak link due to poor discipline and self- control. Finding the right balance is important. Strong psychological skills may be the difference between two teams equal in physical and tactical ability. An analysis of the character traits of players may be useful.

The budding field of sport psychology has led to multiple studies on the effect of emotions or mood on athletic performance. An athlete may experience a wide range of emotions prior to completion that can affect his or her performance. A well- known pregame emotion is anxiety. Anxiety among an Athlete is a felling of perceived imbalance in his or her abilities and the demands placed upon them (Craft, Magyar, Becker, & Feltz, 2003). While moderate levels of anxiety about an approaching competition can actually improve skills and abilities, too much may

comprise performance (Mottram, 2005). In an in-depth study of anxiety in fifteen ballet dancers, the dancers agreed that a certain amount of anxiety was important to increase concentration and energy. Furthermore, the dancers interviewed believed there was an anxiety threshold, above which anxiety would negatively impact performance. The dancer's also nutritional factor.

2.4.1 Mental Training

What would you be thinking? Imagine you have been leading the Olympic triathlon since the start of the race, only to find another athlete arriving at your shoulder 5 km from the finish. This situation could stimulate two possible lines of thought that would result in quite different outcomes in the race. Clearly, the athlete who thinks, "This year I really thought I had it. I have worked so hard and now I have blown it. I really am a loser . . ." will drop off the pace and fall back. However, there is a far greater chance of success for the athlete who thinks, "Well, here she is. The woman they call the best athlete ever. And she has only been able to catch me with 5 km to go. I will just tuck in behind her soon to be 'ex-number one', let her do the work for a change, and see if I can break her later. After all, my 10 km time is as good as hers, and in a close finish I will have the crowds behind me as they always back the underdog." It is in situations such as this that sports psychology becomes so important. Champion athletes commonly exhibit a high degree of: motivation, commitment, positive thinking, focus, and mental toughness, among other factors (Gould, 2001). Background Psychology is the study of how we think and behave. Sport psychology is a science in which the principles of psychology are applied in a sport setting (Cox, 1990). Issues Sport Psychologists are interested in include, but are not limited to; what motivates an athlete, how athletes regulate their thoughts, feelings and emotions, and how they manage anxiety and arousal states in order to maximize performance (Parker, 2000). The principles involved in Sport Psychology are usually applied to enhance performance. The field embraces many concerns and concepts, such as motivation, arousal, reinforcement, psychological preparation, attitudes, attention, emotional health, and stress management (Davies, 1989). Rushall, 1995, proposed that sport psychology could assist athletes in the following ways: a) The actual words an athlete uses in self-talk have an effect on the quality of performance, b) It is possible to increase performance levels in elite athletes through thought processes alone, c) Mental imagery is important for enhancing performance.

Sport Psychologists assist people by helping them to develop the skills necessary to become mentally strong, and prevent them from choking in key situations.

2.4.2. Motivation

Motivation is a particularly relevant issue in the field of Sport Psychology. Motivation can be defined as being aroused to action, to directed purposeful behavior, although this may not always be either efficient or effective (Davies, 1989). Coaches often complain that some athletes would be great if only they were motivated. The players are seen to have all of the physiological and skill components necessary for great performance, yet lack motivation, i.e. regularly show up late, do not try very hard during training etc (Parker, 2000). The study of motivation is important because it seems fairly certain that, with the exception of the small number of sporting champions, the majority of young athletes rarely reach their potential. Given the opportunity, most young athletes could do much better. This is true for all sports, and mainly arises from motivational problems. Quite often, as athlete's progress in their sports, the improvements become gradually smaller. It then becomes harder for athletes to make significant improvements, and often results in a loss of motivation (Davies, 1989). An appropriate level of motivation will not only improve physical performance, it will also assist in the learning of physical skills, which in turn, will affect the quality of performance (Parker, 2000). Motivation essentially comes in two forms: Intrinsic and Extrinsic. If an athlete is motivated to perform an activity for its own sake, they are said to be intrinsically motivated. These motives are said to be determined by the internal desire to achieve a high level of skill in sport. When an athlete performs an activity solely to obtain some external reward, they are extrinsically motivated (Parker, 2000). Intrinsic motivation is often seen as the preferred type, as it is generally associated with greater persistence and greater commitment (Davies, 1989). To improve the level of motivation in athletes the following methods could be used: d) Avoid using winning or performance outcomes, from competitive events as the measure of success. These are out of the direct control of the athlete, and so if a loss occurs, motivation will decrease. Instead use individual comparisons (based on fitness and skill tests) that are in the athlete's control. e) Give Praise. All athletes need positive, honest feedback about their performances. Feelings of contribution to team success by their individual efforts, improves intrinsic motivation. f) Vary the content, venue and sequence of training sessions. Boredom will lead to staleness and/or burnout and will result in not only a

reduction in motivation, but individuals may also drop out of the sport (Parker, 2000). g) Have the athletes fill in a self-reinforcement worksheet (Rushall, 1995). This exercise will increase the effectiveness of reinforcing self-talk, an important factor in increasing motivation. h) Set Goals based on the S.M.A.R.T.E.R principle. Goals should be specific, measurable, affirmative, realistic, time based, evaluated, and recorded. They should also be short-term, intermediate, and long term. When athletes set realistic, achievable goals, and they are reached, a feeling of success is experienced. This will improve motivation. i) Have athletes use Mental Imagery. Sport Psychologists regularly encourage athletes to use imagery to enhance motivation (Martin et al, 1999). If a team was lacking in motivation, the following strategies could be employed: a) Set Goals. Each training session have the team fill out a daily goal-setting sheet, and develop some team goals that are short-term, intermediate, and long term. The goals should be based on the S.M.A.R.T.E.R principle. By setting goals, the team will be motivated to achieve them, and even more motivated to achieve further once initial goals have been reached. It is important that the goals are under the athlete's control, and the emphasis is on achieving these goals, not on winning (Rushall, 1995).b) Use Mental Imagery.

2.4.3. Mental Imagery and Visualization

Mental Imagery is a technique in which the athlete employs as many senses as possible (sight, sound, taste, feel, smell), to recreate a sporting experience in their mind (Castella, 1996). Imagery is often regarded as preferable to visualization, which implies a restriction to the sense of vision (Parker, 2000). Mental Imagery helps reinforce a good competition strategy, and reinforces the nerve pathways that will be used during training and competition (Castillo, 1996). Mental Imagery can aid performance by enhancing the learning and execution of physical skills. This would be useful if an individual or team is not very skilled. The use of word triggers is an important component of imagery. Golfers, for example, may use the word, to program the image of a slow back swing, and a vigorous downswing. Imagery can also be used to aid beginners in learning skills by helping to develop the appropriate mental blueprint of the skill (Parker, 2000). Imagery can also aid performance by enhancing perceptual skills. It can assist in the learning of new strategies and tactics. Soccer players can use imagery before competition to go through the options in a previously learned defensive strategy. It can also be used to solve perceptual problems such as analyzing why a certain strategy is not working (Parker, 2000). Imagery may

strengthen muscle memory, for a task, by having the muscles fire in the correct sequence for a movement, without actually executing that movement (Martin et al, 1999). This would be particularly useful for beginners that have not yet developed the coordination to perform some movements. Mental Imagery can improve athletic performance without any physical activity (Castella, 1996). Mental Imagery will enhance performance if used regularly. It is seen as effective because the brain sends messages to the muscles in the body that would be used in a movement, even though the body does not actually move (Castella, 1996). Imagery will also help a team with low confidence. If a team rarely wins a game, for example, they may be lacking confidence. Imagery can be a powerful means of developing confidence (Davies, 1989). Imagery can sometimes be more effective than actual practice, because the player/s can visualize him/herself playing in a competitive situation, and this to an extent, is more realistic and valuable (Davies, 1989). During mental rehearsal, the player imagines positive outcomes, and this creates a feeling of success, which in turn builds confidence (Davies, 1989).

2.4.4. Confidence

Confidence is in effect, a belief, or self-assurance in ones own abilities. It is essentially a feeling of having an expectation of success (Davies, 1989). To assist in the development of confidence, and improve self-belief, athletes can:

- Use positive self-talk. Using positive self-talk such as “I am going to do well”, or “I have done the work”, will improve self-confidence. Athletes could also use the Self reinforcement worksheet developed by Rushall, 1995, to aid them in the process of self talk.
- Use the Thought Stopping procedure. Each time a negative thought comes into the athlete’s head, he/she immediately says STOP and follows up with something positive.
- Confidence Modeling. Watch videos of yourself or others performing something well to boost confidence.
- Imagery. Imagine performing a skill confidently and correctly to boost confidence.

2.4.5. Arousal

Often as coaches, we hear people say "I'm really nervous about my race! What can I do?" It's a good question. Too much nervous tension can adversely affect performance. Whether before an event, at the start, or during a particular segment of an event, some extra nervous tension at these times is good. It is your body's way of preparing for a difficult challenge - physical and mental. But too much nervous tension can drain valuable energy, interfere with the execution of skills,

and impair your performance. There is an optimal level of arousal for performance in triathlon and other sports. It is a balance between being excited and energized for the event while also being relaxed and focused on executing your race. Sports Psychologists often demonstrate this using the inverted U-hypothesis below. If the race you are doing is important to you and you have prepared well for it, then you will be positively energized. The key to finding optimal arousal then is to minimize or eliminate the extra negative tension that can come from different areas. The first thing we always do when someone tells us that they are nervous is we respond with a simple question, "Why are you nervous?" Most athletes have never thought about it. Most reply, "Because I have a race," and we immediately ask them to look for a deeper answer. We ask them what about your race is making you nervous. What are you worried about? Then we give them some time to think about it. Listed below are some of the common reasons why people are nervous and practical tips to reduce, or in many cases eliminate the anxiety associated with this issue. I am worried that I will have technical problems with my bike and it will ruin my whole race. Worries in this area are very common among athletes. If this is something that makes you nervous, one thing that helps is to go through a very thorough check of your bike a few weeks before the race. Make sure that everything is in good working condition. Check for worn or poorly functioning parts. If something needs repair or replacing, have it done a few weeks before the race, so that you will get to do several training rides with the new parts. If you feel more comfortable with the guidance of an expert in this area, take your bike to a shop for a service or ask a trusted, knowledgeable, friend. Additionally, some athletes like to do a check over of their bike really close to the race, like the day before. This is a check for tightness of bolts and nuts. Make sure everything is in order. Again, some athletes feel more comfortable with having an experienced mechanic check over their bike. After you have checked and know things are OK, release that worry from your mind. Know that your bike is ready to go. The most common technical problem that can occur during a race is a flat tire. Many athletes are worried that they will get a flat tire. You can minimize your worries by taking a few precautionary steps on race day when you are setting up your transition area and making final preparations for your race. First make sure your tire tread is free of any foreign objects. Then make sure your tires are inflated to proper pressure. Also make sure that you are prepared to change a flat tire. Don't expect bad things to happen, but be prepared to flow with them when they do. Make sure you have with you all that you need and make sure you have practiced changing a flat on the wheels

you are racing with. I am worried that I will make mistakes in the transitions. There are 2 keys to alleviating this worry. The first is practice, and with increasing practice, you will not only decrease your worry, but also increase the efficiency of your transitions. Practice of transitions can take on many forms. One thing you can do is devote specific training sessions simply to transitions. For example, go to a local lake and set up a transition area just as you would at a race. After a good warm-up, do a short swim (4-5 minutes) in the exact equipment you will be using at the race (race clothes, wetsuit, cap, goggles, etc.), then come back and complete your transition as you would like to in your race, and ride for 4-5 minutes. Return to your transition area; complete a bike to run transition just as you would in a race. Complete 3-5 of these transitions. One thing you should do is increase the intensity of the swims with each repetition. This is not for training effect but for more specific practice of transitions. It is more difficult to take a wetsuit off or buckle a helmet strap when you're moving at race pace. Some athletes also use a cue word or words that they repeat to themselves if they find they are becoming too tense. Words like "Relax", "Smooth", "Nice and Easy" all work well.

2.4.6. Concentration

As stated in my previous article, concentration is one aspect under the broad term of attention. It relates to the ability to exert deliberate mental effort in a given situation. For example a rugby kicker would focus on picking a spot either a few feet in front of them or between the posts to aim at when kicking a penalty or conversion. Exerting mental effort in a given situation means that concentration doesn't extend beyond that situation. In other words the rugby kicker would maintain his/her focus for the period before and during the kick, but not after. It's important to remember that in order to avoid fatigue; athletes need to be able to switch their focus on when it's needed and off when it isn't.

Much research has been conducted detailing the benefits of a mental skills programmed (including concentration techniques) on athletes' performance. Sheard & Golby (2011) studied the effects of a psychological skills training (PST) program on young swimmers performances and positive psychological development. Thirty six national level swimmers followed a 7 week long PST program which involved learning skills such as visualization, relaxation and concentration among others for 45 minutes per week. A significant improvement was found in 3

swimming strokes and the swimmers post intervention psychological profiles which demonstrates how beneficial a brief period of PST once a week can have on physical and psychological performance.

Although it's always a good idea to have these strategies in your game plan sometimes other aspects of competition can interfere (positively or negatively) with confidence levels as Vast, Young & Thomas (2010) found during their study on the perceived effects of emotion on concentration, attention and performance. They examined how both positive and negative emotions impacted on concentration and found positive emotions like excitement and happiness were more likely to lead to performance related concentration than negative emotions such as anxiety and anger. They also reported that the more intense the emotion, the greater the link.

[Sports Psychology How Mental Training Can Improve Your Performance. P. Mauro, 2005. www.trainingsmartonline.com]

2.4.7. Sleep

It is no secret that the body needs sleep in order to function at its highest level. Athletes tend to be especially limited on sleep time due to competition schedules, prolonged training days, and work demands (Fischer, Nagai, & Teixeira, 2008). It is during the period of sleep that the body discards unnecessary information from the brain, heals, and gains energy for the next day's activities. A good night's sleep is imperative to enhancing performance (Willis, 2009).

The central nervous system controls every aspect of athletic performance, from firing the correct sequence of muscle contraction to reflexes and reaction, exact biomechanical movements to function of skills (Underwood, 2010). When athletes do not receive a full night of sleep, athletic performance decreases due to sleepiness.

Researchers that studied ballet dancers found that health also deteriorated when sleep deprivation patterns were continuous (Fietze et al., 2009). In another study, after thirty hours of sleep deprivation, running performance during a five-mile run on a treadmill was reduced. An interesting finding during this same study was that the perceived effort remained the same; athletes ran a shorter distance because the perceived effort was the same as that for five miles. The deleterious effect of thirty hours of sleep deprivation impaired performance as much as nine

percent. Thus, loss of sleep may result in a significant reduction in aerobic performance (Oliver, Costa, Laing, Bilzon, & Walsh, 2009).

Athletes in particular require more sleep than the average relatively sedentary individual (Davenne, 2009). Researchers who performed a study in 2005 found that when athletes were allowed to sleep as much as they could, players experienced enhanced performances, better moods, and a decrease in fatigue compared to when customary sleeping habits were instilled (Dement, 2005). This data is consistent with Dement's later study that found that the first factors to decline in performance are mood, cognitive function, and the ability of the brain to perform motor skills (Davenne, 2009).

According to Underwood (2010), the muscles need an appropriate amount of sleep in order to meet the demands of reflex and reaction impulses. Evaluative tasks, visual tracking, and focus also depend on adequate rest. Lack of sleep also reduces blood flow to the brain resulting in confusion and physical incapacities seen in individuals who are sleep deprived (Underwood, 2010). Additionally, these symptoms peak during the mid-afternoon, predisposing athletes to poor performance in games performed at this time or later that evening (Fietze et al., 2009).

It is not only the amount of time spent sleeping that affects performance. The quality of sleep received is also paramount to an athlete's ability to perform well. Deep sleep is essential for the release of growth hormones, which allow for the growth and repair of muscles, fat burning, and bone strengthening. The release and consequential effects of this hormone allow for an athlete to recuperate after an intense workout or competition and continue working toward better results. Sleep and physical activity have direct influences on each other (Davenne, 2009).

2.4.8. Anxiety

The budding field of sport psychology has led to multiple studies on the effect of emotions or mood on athletic performance. An athlete may experience a wide range of emotions prior to competition that can affect his or her performance. A well-known pregame emotion is anxiety. Anxiety among an athlete is a feeling of perceived imbalance in his or her abilities and the demands placed upon them (Craft, Magyar, Becker, & Feltz, 2003). While moderate levels of anxiety about an approaching competition can actually improve skills and abilities, too much may comprise performance (Mottram, 2005). In an in-depth study of anxiety in fifteen ballet dancers, the dancers agreed that a certain amount of anxiety was important to increase concentration and energy. Furthermore, the dancers interviewed believed there an anxiety threshold, above which anxiety would negatively impact performance. The dancers also believed that cognitive anxiety, the mental component of anxiety, had a greater effect on performance than the physiological somatic component (Walker & Nordin-Bates, 2010).

In sports where interactions with the opponent before competition are greater, anxiety is believed to grow and become more detrimental (Craft et al., 2003). In a study focusing on penalty kicks in soccer, anxiety tended to cause the athlete to focus on the opposing goalkeeper. Results confirmed that a more centrally located fixation point led to a more centralized shot, making it easier for the goalkeeper to block (Wilson, Wood, & Vine, 2009). Anxiety may also be exacerbated from other sources such as feeling underprepared, the size or type of audiences, fighting to maintain or win a position, or receiving negative criticism (Walker & Nordin-Bates, 2010).

2.4.9. Anger

Anger is usually thought of as a post-performance emotion for circumstances such as performing poorly and/or losing a game. However, anger may also influence an athlete before performance and carry over into competition. A 2004 literature review on mood responses in sport concluded that negative emotions, such as anger, associated themselves with poor performance. The lower an athlete's level of anger, the better they tended to perform (Lane et al., 2004). However, there is an argument that depending on the task, anger may actually enhance performance. Utilizing the cognitive-motivational relational theory, Woodman et al. (2009) correctly hypothesized that

anger would increase performance on a physical task. The study suggested that because anger's action tendency is to lash out, there was a greater peak muscle performance for angry subjects than happy subjects, whose action tendency is to do nothing in order to maintain satiation. These results lead to the conclusion that while anger is typically recognized as an unfavorable emotion before performance, if the task demands relate to the action tendency performance may actually be enriched.

2.4.10. Hope and Happiness

In two studies (Lane et al., 2010; Woodman et al., 2009), the positive emotions of hope and happiness were placed against performance results. In the Lane et al. (2010) study, the emotions of vigor, calmness, and happiness were associated with successful performance. Pleasant emotional states correlated to the attainment of performance goals.

The Woodman et al. (2009) study found that both effort and performance for soccer related reaction time tasks increased under the emotion of hope. Strong emotional intelligence, as well as a player's ability to determine and feel the correct emotion for the task at hand, suggests that acquiring the most beneficial emotions for a specific task lead to enhanced performance (Lane et al., 2010).

2.4.11. Stress

Stress comes in many forms, not all of which are directly related to competition performance. Many of the stressors an elite athlete faces do not come from the competition but rather come from the organization of the team he or she plays for (Mellalieu, Neil, Hanton, & Fletcher, 2009). This could be due to the possibility that athletes are acquainted with stressors that come within competition and because those stressors remain fairly constant. Organizational stressors, however, can vary and remain inconsistent to both type and timing (Hanton, Wagstaff, & Fletcher, 2012). Mellalieu et al. (2009) concluded that multiple organizational stressors affected athletes. One of the major stressors involved the playing environment and the organization of that environment. The athlete's role within the organization of the team and the cohesiveness among players were also revealed to be stressors. In addition, the level of involvement from team management was found to add to an athlete's perceived stress (Mellalieu et al., 2009). Even

though organizational stressors may not continually worsen, they are regularly present and affect the athlete (Hanton et al., 2012). Mellalieu et al. (2009) also investigated the competition stressors faced by athletes. These included stressors such as being adequately physically prepared, internal and external expectations, an athlete's image, and the current opponents. Sustaining an injury was also a stressor to athletes as they have expressed concern over incurring a new injury, worsening an existing one, or feeling unstable at the site of an injury (Walker & Nordin-Bates, 2010).

2.4.12. Mental Toughness

When teams may be quantitatively matched in performance abilities, the deciding factor in winning a game may come down to the mental toughness of the players. Research has shown that the team with the greater mental toughness triumphs more often compared to a mentally weak team (Gucciardi, Gordon, & Dimmock, 2008). Coaches have a direct ability either to catalyze or thwart the development of mental toughness among athletes.

A coach can positively develop mental toughness in many ways including, “developing and maintaining positive coach–athlete relationships... creating training environments that continuously challenge and expose players to various challenges... and employing specific techniques that include coaching behaviors and game awareness” (Gucciardi, Gordon, Dimmock, & Mallett, 2009, p. 1493). When emphasis is placed on performance or criticizing players' weaknesses, the coach has a debilitating effect on mental toughness (Gucciardi et al., 2009). A 2010 study (Butt & Culp) found that athletes believed practicing physically difficult or challenging situations among a positive practice environment helped to increase mental toughness. This is consistent with results that showed a proportional relationship between physical condition and mental toughness. The athletes surveyed also expressed how important teammates could be to the development of mental toughness.

2.4.13. Player Cohesion

The support of teammates is not only integral to gaining mental toughness but is also essential to performing well (Butt & Culp, 2010). Group cohesion and performance are found to be positively correlated (Evans & Dion, 2012). Further, team cohesiveness influences player mood,

which then influences individual performance and could affect group performance as well (Lowther & Lane, 2002). Thus teams with positive player and team mood in regards to team cohesiveness are also predicted to be more successful. Improved group cohesion is found in teams who set goals and work to attain the goals together (Johnson et al., 2011). Often for one player to reach his or her performance goals, he or she relies on the contribution of other players on the team. When multiple individual goals are being met, the team is cohesively working together and improving performance (Lowther & Lane, 2002).had been using a pre performance routine experienced more focus during each shot and was less affected by distractions.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This section of the thesis was research design, data source, population, sampling technique. It is also present the instrument of data collection and methods of data analysis.

3.1. The research design

The main objective of this study was to examine the performance of athletes in project and its enhancement in performance. The qualitative and , quantities methods was employed. This method is selected because they are helpful to identify present condition and point to present needs, Immediate status of phenomenon and facts findings. Moreover, it economical and rapid turnaround in data collection and identifying attribute of a large population.

3.2. Research method

In order to attain objective of the study valuable information was gathered from different sources and various data gathering tools was used to obtain relevant information. Intensive review and related literature was made to support the study with empirical knowledge in the area.

3.3. Sample and Sampling of population

The sample size of target population was determined. The ideal sample size of a target population was 90. Therefore, the researcher used simple probable sampling method mean that the representatives of the whole population in the study by simple random technique. while, the researcher focused his studies on two gender project groups female and male around 14 years . the researcher took from total population of two groups 25male and 20 from female group were included in the study.

3.4. Data collection instrument

In order to collect the data necessary for analysis, the researcher used observation, questionnaires and unstructured interviews and multi methods approach were implemented to maintain the

validity of the study and to acquire information from different sources. The use of different tools helped to see the situation in depth. The detail of each data collection is discussed as follows:-

Observation

In order to obtain information about availability of facility, the principle of social situation between athletes with coaches and athletes each other, observation took place by the researcher. However, the observation were focused on group discussions, and communications, coach athlete relationship, experience sharing while, being alone, the same trainees participate in discussion, the relationship of coach with athletes were not attractive.

Questionnaires

Questionnaires were used to collect information from players. Closed-ended questions were distributed and collected from the respondents. Out of the total questionnaires distributed to the target population 95(95%) from trainees were returned. The analysis was made using the response of trainees.

Interview

Interview guide has been prepared and conducted in order to gain information about nutrition's of athletes from athletics project, during training, after training.

3.5. Procedure of Data Collection

After designing the research instrument (observation check list, questionnaires, and interview) the research site and participant were identified. Then, the observation of the social relationship took the first step-in data collection, this was because the first hand information was, The method and character of coach during the training session. Secondly data and time of contact were determined. Before distributing the prepared questionnaire to respondents it was tested as a pilot on the relevant respondents. Then the questionnaire was revised depending up on the suggestions collected during the try out and administer the concerned respondents so that they would fill and return them back. IN administering the questionnaire research assistants had the necessary orientation on how to distribute and collect questionnaires. Prior contact were made with

respondents to ensure willingness to participate in the study and to maximize the return rate of questionnaires.

3.6. Methods of data analysis

The information obtained from opinion gathered through questionnaire were structured, organized and framed to suit analysis and inference or conclusion. When interpreting the data simple statistical method percentage was used to questions that require quantities qualitative measurement. Accordingly some tables were used in tabulating the result. Finally based on the finding and the conclusion reached, recommendations were proposed as research out put.

3.7. Pilot Study

Before the actual study was carried out, a pilot study was conducted with 10 respondents who were not part of the sample group. The purpose of the pilot study was to assess the relevance of the questionnaires designed to collect data for the study. The objective was also to check the clarity of the questionnaire items. Accordingly, 10 questionnaires were distributed to 10 athletes. On the bases of the feedback of the pilot study and expert's comments some modification was made on the questionnaire.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF THE DATA

This chapter deals with the presentations analysis and interpretation of the data collected from respondents through questionnaires, interviews and observation checklist from the sample population of the study.

All the data gathered from the questionnaires were organized in tabular form and are interpreted using percentage. The information collected through interview and observation checklist is qualitatively described in order to give appropriate answers for the basic question set in the study.

4.1. Characteristic of the study population

Characteristic of the study population were examined in terms of sex. age based on the response to the target for personal data in part one of the questionnaire. The analysis and information of the data are presented in the following table.

Table 1: Respondent respond on Nutritional situation

No	Item-1	No of Athletics (n= 45)			
		Male	%	Female	%
1	Is the food available after training	2		-	
	a. yes				
	b. No	23		20	

As indicated on the above table out of 45 (100%) of respondent 2(4.4%) of male replied that there is food available. Whereas 23(51%) of male and 20(44.4%) of female and totally 95.5 5% of respondents replied that there is no food availability in the project.

Table 2: Item 2 respondents respond on nutritional situation

No	Item	No of Athletics (n= 45)			
		Male	%	Female	%
1	Dose the coach give information about how to take food after training?	4	8.9	3	6.66
	a. yes				
	b. No	7	15.6	8	17.8
	c. sometimes	14	31	9	20

According to the above table 4(8.9%) male and 3(6.66%) of female and totally 15.56% of respondent replied that some information has been give about food intake after raining whereas.7 (15.6%) of make and 8(17.8) of female and totally 33.4% of respondents replied that these is no information has been given about food intake. In the some table 14(31%) of male and 9(20%) of female and totally 51% of respondents replied that sometimes the coach gave information about food intake after training.

Table 3 : item-3 respondent respond on nutritional situation.

No	Item-	No of Athletics (n= 45)			
		Male	%	Female	%
3.	Do you have knowledge about food intake before and after training?	1	2.32	1	2.22%
	a. yes				
	b. No	4	8.88	7	15.55
	c. Some extent	20	44.44	12	26.66

As indicated the above table out of 45(100%) of respondent 1(2.22%) of male and 1(2.22%) of female and totally 4.44% of respondent replied that have some knowledge about how to take food type before and after training but 4(8.88%) of male and 7(15.55%) of female and totally 14.43% of respondents respond that there is no knowledge about food intake before and after training. Whereas 20(44.44%) of male and 12(26.66%) of female and totally 71.10% of respondents replied that there is some knowledge in food intake before and after training.

Table 4: respondent response on social situation/ relationship

No	Item1-2	No of Athletics (n= 45)			
		Male	%	Female	%
1	Have you interest to do training with athletes of the project	25	55.55	18	40%
	a. yes				
	b. No	-	-	2	4.44
2.	Are your family support you				
	To continuous athletics sport?				
	a. Yes	3	6.66	4	8.88
	b. No	22	48.9	16	35.55

The above table indicate that out of 45(100%) respondent of male and female 25(55.55%) male and 18(40%) of female and totally 95.55% of respondents replied that have interest to train together. Whereas 2(4.44%) of female do not have interest to train together with their peers.

Item 2 in the above table out of 45(100%) respondent replied that 3(6.66%) of male and 4(8.88%) of female and totally15.54% of respondent replied there has family support to continuous

athletics support. Whereas, 22(48.49%) of male and 16(35.55%) of female and totally 85.04% of respondents respond that there is no family support to continuous with athletic sport.

Table 5: item 3-6 respondent response on social situation/ relationship

No	Item3-6	No of Athletics (n= 45)			
		Male	%	Female	%
3.	Do you discuss each other about athletes with sport?	6	13.33	7	15.55
	a. yes				
	b. No	19	42.13	13	28.88
4.	Is there athletes in your family?	-		3	6.66
	a. yes				
	b. No	25	55.55	17	37.77
5	Who push you to be athlete?	1	2.22	3	6.66
	a. Family				
	b. Friends	8	17.77	5	11.11
	c. Myself	15	33.33	11	24.44
	d. By famous athletes	2	4.44	1	2.22
6	Do you approach your coach without fear?	6	13.33	5	11.11
	a. Yes				
	b. No	19	42.22	15	33.33

Item 3. According to the above table out of 45(100%) of respondent 6(13.33%) male and 7(15.55%) of female and totally 28.88% of respondent respond/replied that they discuss each other about athletics sport.

Item 4:- in the same table above and 3(6.66%) of female respondent replied that there is athlete in the family. Whereas,55.55% of male and 37.77% of female and totally 93.32 % of respondents replied that there is no athletes in there family.

Item 5:- according to the above table out of 45(100%) of respondent 1(2.22%) of male and 3(6.66%) of female and totally 8.88% of responds respond that family push to be athlete.

In the same question on the above table 8(17.77%) of male and 5(11.11%) of female and 28.88% of respondents replied that friends totally 28.88% of puss to be athlete. In the same table in the same question (15(33.33%) of male and 11(34.44%) of female and totally 7.77% of respondents respond that be athletes themselves. Whereas 2(4.44%) male 1(2.22%) of female respondents replied that incited by appreciating famous athletes.

Item 6: as indicated the above table out of 45(100%) of respondent 6(13.33%) of male and 5 (11.11%) of female and totally 24.44% of respondents applied that approach their coach without fear. Whereas 19(42.22%) of male and 15(33.33%) of female totally and 75.55 % of respondents respond that do not approach their coach without fear.

Table 6: Social situation

No	Item7-8	No of Athletics (n= 45)			
		Male	%	Female	%
7	How in the relationship between you coach?				
	a. good	7	15.55	5	11.11
	b. bad	-		-	-
	c. medium	19	42.22	13	28.88
8	Do you know officials of the project?		4.44		
	a. yes	2		5	11.11
	b. No	24	53.33	14	31.11

Item 7 :- as indicated in above table out of 45(100%) respondent 7(15.55%) of male and 5(11.11% of female and totally 26.66% of respondents replied that there is good relationship between their coach. Whereas, 19(42.22%) of male and 13(28.88%) of female and totally 71.10% of respondents replied that there is medium relationship between their coach.

Item 8 according to the above table out of 45(100%) of respondents 2(4.44%) of male and 5(11.11%) of female and totally 15.55% of respondents replied that they know the officials of the project. Whereas, 24(53.33%) male and 14(31.11%) of female and totally 84.44% of respondents do not know the officials of the project.

Table 7: the respondent respond on psychological situation

No	Item	No of Athletics (n= 45)			
		Male	%	Female	%
1	Do you talk alone during training?				
	a. Yes	18	40	12	26.66
	b. No	7	15.55	8	17.77
2	During training do you think any other rather than training?				
	a. Yes	13	28.88	14	31.11
	b. No	9	20	8	17.77
3	Have you been motivated by your project?				
	a. Yes	6	13.33	7	15.55
	b. No	18	40	14	31.11
4	Do you worry during training ?				
	a. Yes	16	35.55	15	33.33
	b. No	9	20	5	11.11

Item 1: as indicated on the above table out of 45(100%) of respondents 18(40%) of male and 12(26.66%) of female and totally 42.21% of respondents replied that talk alone during training whereas, 7(15.55%) of male and 8(17.77%) of female and totally 33.32% of respondents responded that do not talk alone during training.

Item 2. According to the above in the same table the respondents replied that 13(28.88%) of male and 14(31.11%) of female and totally 59.99% of respondents responded that do not think any other rather than training.

Item 3:- the above table shows that out of 45(100%) of respondents 6(13.33%) of male and 7(15.55%) of female and totally 28.88% of respondent athletes replied that there is motivation in the project. Whereas 18(40%) of male and 14(31.11%) of female and totally 71.11% of respondent athletes replied that no motivation in the project.

Item 4:- as indicated on the above table out of 45(100%) of respondents 16(35.55%) of male and 15(11.11%) of female and totally 46.66% of respondents replied that they worry during training whereas, 9(20%) of male and 5(11.11%) of female and totally 31.11% of respondent athletes do not worry during training.

1. Interview about Nutritional situation.

Information from interview implied there was no availability of food and completely no food budget for the project trainees of arada sub city athletics project. All the project trainees were student. They train after the school time and they depend on their family. All families of trainees had different economical status .mean that the trainees were student therefore, they have no income to fulfill there interest like type of food before and after training so this problem minimize performance.

6. Observation concerning social situation.

1. Coach athlete relationship. Observations took place 6 days and one hour for each observation in different days concern coach and athlete relationship showed bad because the trainees fear to approach, they did not tell their problems freely and the coach did not motivate the trainees to ask any difficulties. .

2. Group communication and discussion. The information of this item showed bad communication and discussion because most of athletes sit separately / small group, they were talking non sporting activity.

3. The coach consider the athletes

The information of the above item indicated bad because the coach did not guide the athletes according to their individual differences and did not consider their cultural social and environmental aspect.

4. **Experience sharing between athletes**

Information from observation implied that there were six observations that took place in different days about the above item while, it showed bad because the experienced athletes have not shown sharing their experience and no one was talking about his concern of experience sharing.

4. Factor of Environmental Situation

4.1. Temperature

Temperature of March 2015

Months of a day	Average Actual temperature
1	25° Lo 15°
2	25° Lo 10°
3	23° Lo 10°
4	28° Lo 13°
5	25° Lo 10°
6	25° Lo 11°
7	27° Lo 11°
8	22° Lo 10°
9	17° Lo 16°
10	16° Lo 13°
11	25° Lo 7°
12	24° Lo 16°
13	26° Lo 9°
14	25° Lo 13°
15	27° Lo 26°
16	27° Lo 13
17	28° Lo 13°
18	27° Lo 15°
19	27° Lo 14°
20	26° Lo 16°
21	26° Lo 14
22	24° Lo 14°
23	23° Lo 14°
24	22° Lo 14°
25	25° Lo 11°
26	25° Lo 11°
27	26° Lo 16°
28	17° Lo 14°
29	24° Lo 14°

[WWW Addis ababa.climatemps.com/march.php]

The above one month of march (2015) average daily Temperature indicated that average actual temperature listed in degree centigrade. However, the coach did not adjust his training time according to tempratute. in addition to the project trainees came training session after school time only. so the variation of daily temperature influence the performance.

4.2. Humidity

Relative humidity in addis ababa, Ethiopia in march.

No	Relative humidity in %	Average dew point	Temprature in O°/O ^F	
1	54%	8.1	46.6	

[WWW Addis ababa.climatemps.com/march.php]

The above in march humidity showed that 54% relative humidity,8.1 Average dew point and 46.6 of temprature in Oc/0F listed. however. the coach did not consider /recognizes the influence of humidity on performance according to the study showed.

4.3. Altitude

- Addis Ababa is at an attitude of 2400 meters above sea level.

altitudes in excess of 6,500ft (2,000m) are generally considered to present a significant challenge to peak athlete performance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter deals with the findings, summary conclusion and recommendation of the research.

5.1. Summary

Investigate some factors affecting the performance of athletic training of Arada Sub-City project in Addis Ababa. To meet objective in detail. The following questions were raised.

1. Why food is not prepared for the Arada sub city athletics trainees?
2. Why is the coach, the Athletes and concerned body relationship becoming bad?
3. Why is the training environment not suitable?
4. Why the trainee's performance have been affected psychologically?

In order to answer these question, the descriptive survey research method was employed. The relevant data to the study was gathered through the application of questionnaire, interview and observation. In general, 50 participants were involved in the study. This thesis of information focus on 20 females 25 male and 5 administrative officials for the successful completion of the research under study.

In analyzing the data both qualitative and quantitative methods were applied based on the data gathered, the following major findings were obtained from the study.

- The study showed that there is no food availability for the project trainees.
- The study revealed that the coach do not have enough information about food intake after training.
- The study showed that most of the athlete do not have knowledge what kind of food would be taken according to exercise
- The study revealed that, there is no enough family encouragement/ support to continue in athletics sport.

- The study indicated that most of the athletes do not discuss about a athletics sport.
- The study showed that in most family there is no athletes.
- The study revealed that most of athletes incited to be athlete by themselves.
- The study showed that most of the athletes do not approach the coach with out fear.
- The study revealed that the relationship of athletes with there coach is medium.
- The study showed that most of the athletes do not know the officials of the project.
- The study showed that there is no encouragable motivation in the project.
- The information in showed that there is no good relationship, group discussion and Experience sharing between athletes in the project.
- The study revealed that in interview there is no nutritional budget in the project and also no responsible body finding alternative concern about nutrition.
- The study showed that in Addis Ababa there were minimum and maximum march average temperature shown in the study. Acoording to the study the coach do not plan training time by by depending on weather condition. this cause negative effect in performance.
- The information of the study showed that the relative humidity of march was 54%,dew point 8.1and temperature 0C(0F)). If the coach do not consider the weather, the athlete become boriedand inactive in training .

5.2. Conclusion

Based on the data that the researcher obtained and analyzed. The following basic points were forwarded as a conclusion

- The athletics project of Arada sub-city do not had budget of food/nutrition the project trainees were students and they train after school time. Therefore, not all concerned bodies of project must find out nutritional budget. during training the trainees lost a lot of energy after training no food for substitution therefore, this affects their performance.
- The trainees train according to the coach plan but after training the coach do not gave information about what type of food the trainee going to take.
- The study showed that the trainees do not have knowledge about food intake before and after training. This showed that no any information have been given by the coach and any

other bodies. the trainees going to lose more energy and water at the time of training but no knowledge about what kind of food he/she take. this minimize the performance.

- Most families of the trainees did not support the athletes .
- Interview of nutritional situation show that there is no food budget for project trainees after training the trainees lost energy after training but no food availability to substitute their energy.

The information indicated that the minimum and maximum average temperature vary. this daily temperature variation was not suitable for training unless the coach adjust the training time according to the weather condition.

The study showed that the relative humidity of march 2015 was 54%, its dew point was 8.1 and the temperature 46.6 0c(0F).so this makes the athletes inactive, make boride. So the coach should consider when training.

-the altitude of Addis Ababa was 2400m above sea level but altitude in excess of 6500ft(2,000m)are generally consider to present a significant challenge to peak athletes performance. Because it affects athletes health like sleepiness, breathless, tiredness and headache etc... .

5.3. Recommendation

On the bases of the findings obtained, the following points are recommended

- The concern bodies such as Arada sub-City sport office and other stakeholders take responsible to find trainees food budget.

- The coach should co-ordinate the trainees with experience and non experience athlete to share their own experience each other.
- The family and members of family support the athletes financially, morally and socially to continue enhance the athletics sport in the country .
- The concern body of the project administrative officials, especially the coach should try to know each individual behavior and push the trainees to reflect their idea freely.
- The trainees didn't know administrative officials. Therefore, the concern bodies of the project introduce themselves and their duties in the project.
- Coach should consider the individual difference of trainees and design to arrange group discussion, experience sharing in his plan. According to their interest.
- The coach should adjust training time, sport wearing and maximize and minimize duration of training according situation of weather.
- The concern bodies of the project should prepare alternative training field. The coach should adjust training time.

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Appendix

ይህ ጥያቄ የተዘጋጀው ጥናታዊ ጽሁፍ ለማዘጋጀት ብቻ ነው። የተሳታፊው ስም አይጠቀስም።

ለሚሰጡን ትክክለኛ መልስ ክልብ እና መሰግናለን።

1. ያታ:- ወንድ ሴት

2 ዕድሜ: _____

3 ክልል: _____

ለሚከተሉት ጥያቄዎች ተስማሚውን መልስ ሣጥኑ ውስጥ ✓ ምልክት በመስጠት መልሱ።

የምግብ ሁኔታን የሚመለከት

1. ከስልጠና በኋላ ምግብ በፕሮጀክቱ ይዘጋጃል/ ወይም ለምግብ የሚሆን ገንዘብ ይሰጣችኋል? አዎ አይሰጥም

መልሱ አዎን ከሆነ በማንበአዎሩ ግለፅ/ዎ

2. አሰልጣኛችሁ ስለምግብ አወሳሰድ ከስልጠና በፊትም ሆነ በኋላ መረጃ ይሰጣል? አዎ አይሰጥም አልፎ አልፎ

3. ከስልጠና በፊትና በኋላ ስለምግብ አወሳሰድ ዕውቀቱ አለህ/ አለሽ? አዎ የለኝም የተወሰነ

መልሱ አዎ ከሆነ ስለ ምግብ አወሳሰድ ምን ታውቃለህ/ሽ በአዎሩ መልስ ፃፍ/ፊ

የማህበራዊ ግንኙነት ሁኔታ

1. ከፕሮጀክቱ ሰልጣኞች ጋር በጋራ ልምምድ ለመስራት ፍላጎት አለህ/ሽ?

አዎ የለኝም

2. በሩጫው ስፖርት እንድትቀጥል/ይ የቤተሰብ ድጋፍ ይደረግልሃል/ሻል?

አዎ አይደረግልኝም

3. ስለ ሩጫ ፣ ስፖርት አብራችሁ ከምትወዳደሩት /ከምትሰለጥኑት ጋር

ተዎያይታችሁ ታውቃላችሁ? አዎ አናውቅም

4. በቤተሰብህ/ሽ ውስጥ ሯጭ አለ? አዎ የለም

መልሱ አዎ ከሆነ ምን ያህል? በአጭሩ ግለፅ/ጭ _____

5. ሯጭ እንድትሆን/ኝ ማን ገፋፋህ?

ቤተሰብ ጓደኛ በራስ ተነሳሽነት ታዋቂ ሯጮችን በማድነቅ

መልስህ/ሽ ቤተሰብ ከሆነ ከቤተሰብ አባል ውስጥ ማን እንደሆነ በአጭሩ ጥቀስ/ሽ _____

6. አሰልጣኝህን ሳትፈራ ትቀርባለህ? አዎ አልቀርብም

7. ባንተና ባሰልጣኝህ መካከል ያለው ቀረቤታ እንዴት ነው?

ጥሩ ነው መጥፎ ነው መካከለኛ ነው

8. የፕሮጀክቱን የቢሮ ሰራተኞችን ታውቃለህ/ሽ?

አዎ አውቃለሁ አላውቅም

መልሱ: አዎ ከሆነ ከነርሱ ጋር ተነጋግረህ/ሽ ታውቃለህ/ሽ?

በፍፁም አንድ አንዴ ሁል ጊዜ

ሥነ ዓይምሮአዊ ሁኔታ

1. በስልጠና ወቅት/ጊዜ ብቻህን አውርተህ ታውቃለህ/ሽ?

አዎ አላውቅም

2. በሥልጠና ጊዜ ከስልጠናው በስተቀር ሌላ ነገር ታስባለህ/ሽ?

አዎ አላውቅም

3. የሩጫውን ስልጠና ባዘጋጀው ፕሮጀክት የተለያዩ ማነቃቂያ ተደርጎልህ/ሽ ያውቃል?

አዎ አያውቅም

መልሱ አዎ ከሆነ ምን ዓይነት? በአጭሩ ይግለፁ _____

4. በስልጠና ጊዜ ትጨናነቃለህ? አዎ አልጨናነቅም

መልሱ አዎ ከሆነ ምንድን ነው የሚያስጨንቅህ? በአጭሩ ግለፅ/ጭ _____

የምግብ ሁኔታን የተመለከተ የተዘጋጀ ቃለ መጠይቅ ለቢሮ አስተዳደሮች

1. ለሠልጠኞች ስለምግብ ሁኔታ ምን ያውቃል

2. ምግብ እንደት ነው የምዘጋጀው

3. ለሠልጠኞች የምግብ በጀት እንዴት ነው

4. ከሥልጠና በኋላና በፊት ስለምግብ አወሳሰድ ቢያብራሩልን

Factors that affecting performance of athletics training in short distance: on the case of Arada sub-city in Addis Ababa Administration.

This questionnaire only for writing thesis paper not need to mention participant name

Thank you for giving answer for the following given questions .

Give answer by ticking the appropriate box like

1. Sex Male Female

2. Age _____ Years

3. Place of birth _____

4. Region _____

❖ nutritional situation

1. Is the food available after training? Yes No

If yes by whom? Explain shortly _____

2. Is your coach give some information about how to take food type after training?

No Yes

3. Do you have some knowledge about food intake after or before training?

Yes No

If yes, what do you know about food intake-----

Social situation

1. Are you interested to do exercise with athletes of the project?
Yes No
2. are your family support you to continuous athletics sport?
Yes No
3. Do you have been discussed about athletics sport with athletes of the project?
Yes No
4. Is there athlete in your family?
Yes No

If yes How many? write shortly-----

5. Who inciate you to be athlete?

Family Friends Myself
by appreciating famous athlete

if your answer is family mention that family member shortly

6. Do you approach your coach without any fear?

Yes No

7. What was the relationship you and your coach?

Good Bad medium

8. do you know official of the project? Yes No

If yes, do you speak with them? Never rarely always

❖ psychological situation

1. Do you talk alone during training and computation?

Yes No

2. During training do you think other rather than training?

Yes No some times

Have you been motivated by your athletics project?

Yes No

If you say yes explain kind of motivation shortly

3. Are you worrying during training?

Yes No

If yes, about what? -----

Observation of athletes social situation

No	items	good	bad	reason
1	Coach and athlete relationship			
2	Group communication and discussion			
3	Coach consideration on athletes			
4	Experience exchange between athletes			

❖ Interview for administrative officials about nutritional situation.

1. What do you know nutritional availability for trainees?
2. How do you prepare food for trainees?
3. How do you know food budget of trainees ?
4. What type of food the project prepare more after training?
5. What do you think the necessity of food before and after training?

Declaration

I declared that this thesis is my own original work and has not been presented for any degree and that all sources of materials used for the study have been duly acknowledged.

Name: Bekele Abebe

Signature: _____

Date: June, 2015

This thesis has been submitted for examination with my approval as a university advisor.

Name: Benoit Gauudin (Dr.)

Signature: _____

Date: June, 2015