

**FACTORS THAT AFFECT HURDLE PERFORMANCE IN SOME
SELECTED FIRST DIVISION ATHELETICS CLUBS IN ADDIS ABABA,
ETHIOPIA**

BY: ADDIS ENDRIS

**A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES OF
ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN
SPORT SCIENCE**

August, 2012

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ACRONYMS

CG: center of gravity

FITT: f= frequency, I= intensity, T=time and T=training activity.

FTG: Fast Twitch Glycol tic

IAAF: International amateur athletics federation

IRFD: Initial Rate of Force Development

MRFD: Maximum Rate of Force Development.

RFD: Rate of Force Development

USA: united state of America

VO2 max: maximum oxygen consumption

ABSTRACT

This study is conducted with ultimate objective of exploring factors that affect hurdle performance. Four sample first division athletics clubs were selected, from six Addis Ababa first division athletics clubs, (Marema betoch, Fedral Police, Defense and Commercial Bank of Ethiopia) Comprehensive sampling technique. Thus, the subjects in the study were 31 athletes, 4 coaches, and 4 administrative staff. In this study descriptive survey method was employed. Questionnaire was dominantly used as data collection instrument; unstructured interview and observation were also used in the process. The data gathered through questionnaires were analyzed by using frequency counts and their percentages; whereas the data gathered through interview and observation were analyzed. From the data analysis, the major findings obtained were: - There were less communications between the athletes and coaches. Because athletes attitude towards the coach was very low, the support that the clubs were inadequate, from the finding the major problems of hurdle race were lack of scientific method of training and ignorant to the methodology of coaching, As well as the quality and quantity of training track, Lack of qualified coaches, Injuries in relation to training and lack of psychological skill training, the interest of the athletes and the coaches were very low, motivation of the athletes themselves and coaches to motivate the athletes were less and total benefits (food and drink, pocket money, sport wear, reward and monthly payment) of the athletes as well as coaches were unsatisfactory.

Keywords hurdle, clearance, “rhythm sprinting”, performance, training, takeoff and landing.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Athletics has a most unique position in sport, because there are several sports. The Olympic programme has 24 men's events, and women will have the same when pole vault, hammer throw and steeplechase are added to the existing 21. It has single events such as 100m, and combined events such as decathlon. It has individual events such as high jump, and team events such as relays and the European Cup competition. It is for all ages, and there are competitions both for able-bodied and disabled athletes. In addition to the events of the Olympic programme, athletics also includes tug of war, cross country, road running and fell running. Through its collection of sports, athletics gives people an opportunity to achieve success. Because performance can be measured by a stopwatch or measuring tape, athletes have personal or team challenges to beat their own best time, distance or height. Each improvement is achievement. Then again, athletes have personal or team challenges to better other athletes or teams. In short - you don't have to win a gold medal to be an achiever in athletics. You can decide your goal, and then go for it. One day that goal may well be a gold medal! Through the discipline of practice and training for athletics events, the sport also provides a great opportunity for development of personal conditioning in terms of strength, stamina, suppleness and speed - qualities valuable not only for athletics, but for all sports. The fact is, then, that athletics has something for everyone. (Gerry C, 1999)

The Benefits of Athletics

The sport of athletics encourages athletes of all abilities and ages to compete at their optimum level. Through the track and- field-based athletics training program, participants can develop total fitness to compete in any sport. As with all Special Olympics sports, athletics offers athletes the opportunity to learn through skill development and competitive settings and to be involved in large social settings. In essence, success in athletics depends on the athlete's determination and practice habits. Yet merely by participating in an athletic training program, the athlete can learn: Self-discipline the ability to make independent decisions lifelong fitness skills that will help him

or her lead a more productive and independent life. There are many different skill levels demonstrated by Special Olympics athletes, and the coach has the responsibility of learning the skill level of each athlete. Using that knowledge, the coach takes the resources provided in this guide and adapts the information as it applies to each athlete. Levels from basic to advanced are accommodated in the guide, giving the coach a range of skills and drills to choose from. All information is a guideline, to be used by the coach in a way that works for his or her athletes. If a skill or drill looks too difficult, the coach can simply modify it as required to help the athletes learn and perform. Keep in mind that to help athletes improve and grow, it is good for the coach to challenge them by continually observing and assessing their skills, providing new techniques and drills and giving positive encouragement, regardless of their skill level.

(<http://WWW.daneprairie.com>).

HURDLES

Hurdling is basically sprinting over obstacles. It is often described as ‘rhythm sprinting’, the rhythm being imposed by the spacing and height of the hurdle. The event favors’ the taller, leggier person, but this can be overcome for the purpose of class teaching by positioning the hurdles to suit the physique and ability of the performers (http://en.wikipedia.org/wiki/100meters_hurdles).

To this end, the meanings and categories of hurdle and its characteristics are discussed. In view of the above, this topic tries to investigate the current problems and challenges of hurdle performance in some selected Addis Ababa first division athletics clubs of Ethiopian hurdler based on the previous results of world championship, training selection criteria and other factors that affect the Ethiopian hurdler athletes’ performance. In general the current realities of the stated above in Ethiopian nation team and some selected clubs of Addis Ababa and the researcher gives possible recommendations.

1.2 STATEMENT OF THE STUDY

There are sources which indicate 3000 meters steeplechase to be more or less similar with middle and long distance race. If this is the case “why” Ethiopians performance in this discipline is so poor? So to Examining the current factors that affect hurdle performance of some selected first division Addis Ababa Athletics clubs would enable us to find out strategies used to enhance

hurdle performance. Above all understanding the current factors that affect hurdle performance and striving for improvement is the crucial of the whole matter. In line with this Judah (2008) rightly put it.

Since Ethiopia joined the Olympic Games in 1956 until London (2012) Olympic, they collected total of 17 gold, 6 silver and 126 bronze medals. Except one bronze medal 3000 meters steeplechase by Sofia Assefa in London 2012 Olympic all the medals were collected in the long distance running.

From the above quotation one can discerned that Ethiopia did have only one medal in short distance running (including hurdle race) in Olympic Games. In conformity with this Dick (1997) asserted “the gap of the resource between wealthy and poorer countries growing”. In lion with aforementioned idea, there are many hindering factors that affect hurdle performance.

Ethiopia participate hurdle race both sexes male and female athletes for Africa championship and all African games but there is one to represent on world athletics championship and Olympic games. However Zewde Hailemariam participate all African games in Aug8/1987 held in Nairobi, Kenya she needs to finish her 400mater hurdle race 57.60sec and Asegedech Bekele also participate all African games in sept16/1995 held in Addis Ababa, Ethiopia she needs to finish her 100mater hurdle race 15.22sec, In Sept 1/ 1988 African championship held in Algeria (Annba) Aschalew Tesfaye participate and he needs to finish his 400m hurdle race 51.26sec and ,Ubang Abaya represent Ethiopia in Africa championship /June 4/ 2005/ held in Addis Ababa (Ethiopia) he also finished his 110mater hurdle race with in14.3sec and also Zelalem Chemdesa represent Ethiopia in Africa championship held in Addis Ababa may 3/2008 He also participated 110mater hurdle race and he finished within 15.04sec. So the above historical background indicates there are many factors that affected hurdle performance. Therefore, this study is believed to be timely and important to deal with the current factors that affect hurdle performance of some selected fist division athletics clubs Addis Ababa, Ethiopia.

1.3 RESEARCH QUESTION

1. What are the major factors that affect the performance of hurdle race?
2. What are the methods of training employed in the clubs?
3. Is the training method comfortable for the athletes?

4. Is the reward and incentives that affects hurdle performance?

1.4 OBJECTIVE OF THE STUDY

GENERAL OBJECTIVE

The general objective of this study is to assess the attitude, method of training, current problems and challenges of hurdle race performance in some selected first division athletics clubs Addis Ababa, Ethiopia.

SPECIFIC OBJECTIVES

- To identify the attitude of athletes and coaches towards hurdling
- To examine the major factors affecting the performance of hurdler athletes.
- To assess the methods of training, criteria of selecting athletes and other problems related hurdle race.
- To find out solutions to the problems that affects the Addis Ababa athletics clubs.

1.5 SIGNIFICANCE OF THE STUDY

Conducting the study in ongoing practical and challenging of factors affecting hurdle performance will have the following significance: it helps to identify factors affecting hurdle performance, it may also create awareness about training system, it may also help to participate in worldwide competition, provide use full information for clubs, personnel's, in the training especially in the area of hurdler and give feedback about the problem of this event for clubs, athletes in Addis Ababa federation.

1.6 DELIMITATION OF THE STUDY

The study delimited to factors affected hurdle performance in some selected first division athletics clubs Addis Ababa, Ethiopia.

1.7 LIMITATION OF THE STUDY

During conducting this study the researcher may be face the following limitations, scarcity of reading materials in the area as a result, Lack of cooperation with athletics federation, coaches and athletes to get reliable information, financial problems, Shortage of time the above constraints may lack the qualities of the study.

1.8 OPERATIONAL DEFINITION OF TERMS

Athlete: is a person who competes in sport.

Coach: is a person who help/train athletes meet their need to have fun and develop performance by strutting their sport experience.

Fitness; is how well a person is adapted to and capable of living a certain lifestyle.

Methods of Training: is the intelligently and systematically applying a basic knowledge of biomechanics and physiology helps to create good track and field athlete.

Performance; an observable behavior of the athlete in the play ground.

Status: the situation at which sprit is current found

Training; is a systematic process with the objective of improving an athlete's fitness in a selected activity.

Training principals: - are the guide lines govern human beings to develop physical, mental and performance response to implement training.

Hurdle: Hurdle is a track and field event that involves a sprint race with a number of barriers, which the athlete must clear during the race. a portable barrier over which contestants must leap in certain running races, usually a wooden frame with a hinged inner frame that swings down under impact to prevent injury to a runner who does not clear it.

1.9 ORGANIZATION OF THE STUDY

The final research paper organized into five chapters. The first chapter deals with introduction, background of the study, statement of the problem, significance, scope, limitation of the study and operational definition of terms. The second chapter deal with review of related literature pertinent to the research; the third chapter covers research methodology, which includes research design, sample size, sampling technique, and data collection instruments and data analysis method. While the fourth chapter deals on research results and discussions, the fifth and the last chapter summarize the research and highlight the way forward. References and appendix, which include questionnaire, checklists, glossary and other related materials, will be part of the document.

CHAPTER TWO

REVIEW RELATED LITERATURE

The study of track and field for the coach that wants to learn more about technique and training has changed greatly over the past thirty-five years. The coach today, using a program like Dart fish, has this information immediately upon downloading the video from a competition or workout session. Information provided the coach the past two decades has greatly increased our understanding of technique and training. According to (Dr. Ralph, Mann, *2007*), who presented early today, has assisted the sprint and hurdle coaches of our elite athletes for the past twenty years with a yearly seminar. During this seminar, the coach is shown their athlete during USA Championship or Olympic Trial competition compared to a computer model of the “perfect” technique. Each year the elite coach takes this comparison home and applies it to their workout plans with minute adjustments to assist the elite athlete in making improvements for the next season. The study of track and field technique has had many contributors over the years. One of his best for sprint and hurdle coaches was how they train. The objective of this study was to establish and analyses those factors affect an efficient hurdle clearance technique. This is one of the most important factors affecting the performance of athletes in the 110m hurdle event. Test runs from starting blocks with the clearance of five hurdles. The dynamic parameters of the take-off and landing of hurdle clearance were determined with a Kastler force platform. It was found that efficient hurdle clearance technique is generated by the following factors: The contact time of take-off, an optimal ratio of the braking phase to propulsion phase of take-off, the ratio of the point of take-off to landing, (relative to the hurdle), flight time, short braking phase in landing, high position of the centre of gravity (CG) at landing and minimal reduction in the horizontal force of the CG at landing. Technically, the high hurdles are among the most demanding track and field events. According to some of the research carried out to date (*Schluter, 1981; Mero and Luhtanen, 1986; La Fortune, 1988; McDonald and Dapena, 1991; Dapena, 1991; McLean, 1994; Kampmiller, Slamka and Vanderka, 1999*), the hurdle clearance technique is one of the key elements defining the competitive result. From the aspect of biomechanics, hurdles are a combination of cyclic sprinting and acyclic clearance of ten 1.067m hurdles. Therefore, the athlete must possess a high level of sprinting abilities, special flexibility at the hip joint, fast

strength, and a high level of technical knowledge. While clearing the hurdle, the loss of horizontal velocity must be as small as possible. However, (Schluter, 1981; Dapena, 1991) explained that numerous factors depend on, especially those, that define the take-off before hurdle clearance, the trajectory of the movement of the CG, and the landing after hurdle clearance. For efficient hurdle clearance, the point of the take-off and the point of landing of hurdle clearance are important. The correct position of these two points is a prerequisite for an optimal CG flight trajectory and reflects in the flight time, which must be as short as possible. In addition to the correct position, (La Fortune, 1988; McLean, 1994) stated that the kinematic-dynamic structure of take-off and landing, which directly affects the velocity of hurdle clearance is also important. Therefore, the objective of the present study was to determine which parameters generate the most efficient hurdle clearance technique, by kinematic analysis and the method of ground reaction forces measurement. The kinematic and dynamic analysis of the technique was performed at the fourth hurdle. The stride before hurdle clearance and the stride after hurdle clearance were analyzed. It can be established that the execution of take-off and landing defines the degree of efficiency of hurdle clearance. Undoubtedly, this is an important factor, which determines the competition results of athletes in the 110m hurdles event. The time relationship between the braking phase and propulsion phase is completely different in take-off and landing. The function of take-off is to ensure suitable transformation of the horizontal velocity of the CG into vertical velocity. The horizontal velocity decreases and the vertical velocity increases, due to the change in the direction of the movement of the CG. In the landing phase, which is one of the most important components of technique, the contact time and the braking phase of the contact time must be as short as possible, in order to maintain the horizontal velocity of the CG while clearing the hurdle. The efficiency of hurdle clearance is also defined by the take-off angle, the correct ratio of the foot to hurdle distance in take-off and landing, flight-time, and the height of the centre of gravity over the hurdle. The results of the study can be utilized for good and objective assessment of hurdling technique, diagnosis of shortcomings, and for the control and modeling of the technical preparation of the athletes.

2.1 WIND AND ALTITUDE EFFECTS ON 110-M HURDLES

(Ward-Smith, 1985, 1999; Linthorne, 1994) studied that a model of the men's 110-m hurdles that gives good agreement between predicted and actual race times and velocity profiles. However,

using such a model to predict the effects of wind and altitude is slightly problematic in that these effects are small, so small discrepancies in the model lead to inaccurate predictions. Previous experiences with models of wind assistance suggest that a good result for a model is to predict the effects of wind and altitude to within a factor of about the true effects. Better predictive ability will require some good direct experimental results of the effect of wind and altitude on the 110-m hurdles to allow fine-tuning of the model. *According to (Linthorne, 1994)* the predicted effect of a $+2.0 \text{ m.s}^{-1}$ wind on the 110-m hurdles is 0.19 s. The effect of a $+2.0 \text{ m.s}^{-1}$ wind on the 100-m sprint is 0.10 s.

2.2 SPRINTING AND ITS CHARACTERISTICS OF THE SPORT

At Olympic-level competition, sprint events include the 100 m, 200 m, 400 m, 4 x 100 m relay and 4 x 400 m relay. The 100 m, and 400 m hurdles can also be considered as sprint events. Sprint and hurdle events rely primarily on the development of power through anaerobic energy. Elite sprinters train all year round with the base or off-season involving around eleven sessions per week. Off-season training usually involves a considerable commitment to weight training, with about one-third of the total training load being carried out in the gym. In addition, off-season training focuses on refining technique with a combination of sessions on the track and drill work to improve aspects such as leg speed or knee lift. Stretching sessions are often included to aid in recovery. As the competitive season approaches, track work increases to include more intervals and sprints, although technique work and weight training are still maintained. Junior and recreational sprinters spend less hours training and training is usually seasonal. Major competitions for elite sprinters are the Olympic Games, World Championships and Grand Prix Circuit. Most Australian sprinters spend the winter months overseas returning to Australia to compete in key selection events during the Australian summer. At junior and recreational levels, competitions are usually held on a weekly basis during the summer months. Power-to-weight ratio is important for sprinters; therefore maximizing muscle mass and maintaining low body fat levels is desirable. (*AIS www.ais.org*)

Sprinters need to consume sufficient carbohydrate to fuel training needs; however, carbohydrate requirements do not reach the level of endurance-type athletes. Sprinters need to be mindful of maintaining low body fat levels but still need to eat a sufficient variety and quantity of food to

meet nutritional requirements and allow for the development of muscle mass. Diets need to be nutrient-dense. This is best achieved by including a wide variety of nutrient-dense carbohydrate sources such as bread, cereal, fruit, vegetables and sweetened dairy products in the diet. Moderate portions of lean sources of protein such as lean meat, skin-free chicken, eggs; low-fat dairy foods, lentils and tofu should also be on the menu. Energy-dense foods such as cakes, pastries, lilies, soft drinks, chocolate, alcohol and takeaways should be used sparingly. Appropriate snacks need to be included before and after training to maximize performance during training and to promote recovery. Snack foods such as yoghurt, fresh fruit, low-fat flavored milk and sandwiches are all nutritious fuel foods and make good snacks.

(AIS www.ais.org.)

Sprinters require low body fat levels whilst being strong and muscular. Low body-fat levels usually occur naturally for male athletes, thanks to the cumulative effect of training on the right genetic stock. However, male sprinters often need to reduce total body mass leading into the competition phase. Some of the additional muscle mass gained in off-season weight training is not sport specific, therefore needs to be trimmed to achieve an ideal racing body composition. (Written by the Department of Sports Nutrition, AIS www.ais.org.)

2.3 HIGH HURDLING (70M – 110M) GENERAL INFORMATION

(McFarlane, Brent, 1981) suggested that: High hurdling is regarded as a sprinting event. It is required from the hurdler to run faultlessly over a set of equally spaced hurdles as fast as possible. If the high hurdles race is executed well, there should be no more than 1,5 - 2 sec. difference between the time of the flat sprint and the hurdle sprint. Depending on the age and gender of the athlete: The distance of the race may vary between 70m to 110m, the height of the hurdle may vary between 68cm and 106 cm and the amount of hurdles will vary between 8 and 10 hurdles. The primary emphasis in hurdling is on speed between the hurdles rather than clearing the hurdle fast.

Note: An athlete can only accelerate if the feet touch the ground. The time the athlete takes to cover the distance between the hurdles, are determined by how fast the athlete clears the hurdles. Therefore, add faultless technique to speed, and you have a good sprint hurdler. Most hurdlers take 7-8 strides to the first hurdle and three strides between the hurdles. The short sprint hurdle

race consists of three parts: The acceleration phase to maximum speed, which reaches its peak around the third flight of hurdles, the maintenance of speed until the eighth flight of hurdles and Slight deceleration of speed over the last two flights of hurdles because of the onset of fatigue.

The hurdler must avoid: Prematurely straightening the lead leg, Picking up the trailing leg without completing the drive, Pointing the toes of the lead leg while the lead leg is flexing, Attacking the hurdle too closely or jumping over the hurdle, Raising the flexed leading leg too high, 'Pulling' the take-off leg through too high, Flexing the leading leg on landing, Leaning back on landing and Incomplete driving action of the driving leg on making contact with the ground. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

The hurdler must aim to: Carry the hip forward as the flexed leading leg is lifted, Keep the foot of the lead leg "cocked" while the leading leg is lifted, Pick up the take-off leg as a result of the drive rather than just 'pulling' it off the ground, Make the flight parabola low in order to shorten 'flight' time, Keep the leading leg extended as the thigh reaches the height of the hip, Move the back leg from behind to the front and not from down up, Keep the ankle firm on landing and make an active re-entry running, Keeps the trunk leaning forward slightly in order to 'run away' from the hurdle and Time the clearance so that the knee of the take-off leg is never in front of the hips when the athlete is directly over the hurdle. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

Hurdling.pdf

From the start to the first hurdle: Most high hurdle races are won or lost during this phase and must be practiced regularly, especially prior to the race, The start of the hurdler is the same as for the sprinter, The distance from start to the first hurdle is normally covered in 7-8 strides, For the lead leg to pass first over the hurdle, the lead leg must be on the back block of the starting blocks for the 7-stride approach, The lead leg must be on the front block, for the 8-stride approach, Acceleration to the first hurdle can only be obtained by stride frequency and not stride length. If one stride less is used in the approach run, it can cause over-striding which can lead to a braking effect on the foot placement, The stride length before the first hurdle progressively lengthens until the second last stride before take-off, The hurdler reaches normal upright running action after 4-5 strides after the start. The sprinter after 15 - 20 strides and the last stride before take-off is shorter than the previous one. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

The take-off: During the last stride before take-off, the athlete must drive from the toes of the trailing leg, and keep the hips as high as possible, but in front of the feet. This will reduce the flight time over the hurdle. The faster the lead leg touches down after the hurdle, the sooner the athlete can start to run again. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

The leading leg: When lifting the lead leg while driving into the hurdle, the athlete must concentrate on lifting the thigh-knee combination, not leg-foot combination. When concentrating on lifting the thigh-knee, the athlete will drive forward rather than upwards, The lead leg attack begins with a high knee action with the foot cocked (pointing upwards), The foot of the leading leg is cocked, to allow faster up and down movement of the leg. The cocked foot will keep the lead leg bend. A bend leg is shorter than a straight leg and therefore easier to bring down than a straight leg; the leading foot should not be allowed to get in front of the attacking knee too early. This will cause the hips to drop. It leads to a longer time in the air because the hips go up rather than forward and As the lead leg is lifted and extended towards the hurdle, the lead arm (opposite arm) is brought forward slightly flexed in front of the chest, and then allowed to extend of its own accord. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

Clearing the hurdle: When the knee has reached maximum height in the drive into the hurdle, the lower leg is thrust towards the hurdle and immediately pulled down and backwards under the body, the trail leg starts driving over the hurdle. The foot of the trail leg must be flexed and point sideways to avoid it from hitting the hurdle, The higher the hurdle, the more the trunk of the athlete will bend forward to stop the hips from lifting too high, With the lower hurdles, the trunk will remain upright, provided that the athlete is tall enough. There is no need for the trunk to bend into the hurdle if the athlete can stand straddled across the hurdle without touching the hurdle between the legs, Body lean and forward rotation must start while the trailing leg of the hurdler is still in contact with the ground, The lead arm must not be thrust forward violently as this can twists the upper body and cause the athlete to lose balance, Keep the arm action and leg action synchronized. This will keep the shoulders square, assists balance and rhythm. It also counteracts the lateral rotation of the trunk and the trail arm moves in a short ½ circle around the hip, allowing it to enter into the sprinting phase upon landing. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

The trailing leg: The heel of the trail leg must remain as close to the buttocks as possible until it crosses the hurdle, at which time it is pulled by the high knee to the under-arm position, the

trailing knee is pulled up rather than forward to assist the lead leg with a faster downward movement. The angle between the thigh and lower leg is about 90°, as the trail leg comes forward, the lead arm must be in a backward motion to keep the shoulders square throughout the flight and landing and the mass of the trail leg is more than the lead arm. To counteract the difference, the arm must swing wider than the leg towards the back. This wider action is terminated as soon as the foot touches down. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

Landing and follow-up stride: The lower leg of the lead leg is thrust towards the hurdle and immediately pulled down and backwards under the body. This action will keep the hips (centre of gravity) in front of the foot on touchdown; this down/backwards movement of the lead leg will assist the fast follow-up of the trail leg. If executed correctly, the hips will be slightly ahead of the leading foot on touchdown. The athlete must concentrate on running on the toes, To assist the downward movement of the leg, the trunk must be brought upright after clearing the hurdle, but avoid leaning back, The knee of the trailing leg must be pulled through high over the hurdle. The follow-up stride after touch down after the hurdle will be too short if the trailing knee is allowed to drop during the pull through stage. For the lower hurdles, the trailing knee can be brought through lower, The landing should not be more than 3 of the athlete's own feet lengths on the other side of the hurdle, Land on the ball of the foot and keep the ankle firm on landing. This will assist with an active re-entry into running, Use both arms and trailing leg to make a strong, fast first stride and the body must be upright on landing. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

Running between the hurdles: The emphasis is now on fast stride frequency between the hurdles rather than over striding, The follow-up stride after touchdown is always the shortest, because of the hurdle clearance, The second stride must be the longest, The third and last stride is always slightly shorter than the previous stride, to assist with the hurdle attack, the forward lean of the upper body, and to assist with a low trajectory of the hips (parabolic curve) over the hurdle, Run on the toes, Run with the hips high and The pattern between the hurdles is a three-stride pattern (the feet touch the ground 4 times between hurdles); with the last stride merely longer and more accentuated in its action because of the presence of the hurdle. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

Finishing sprint: Having cleared the last hurdle, attention is directed towards the remaining distance to the finish line. Athletes should count their strides and dip on the last stride (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

2.4 SPRINT HURDLE DRILLS

According to MACKENZIE, B. (2001) the purpose of these drills is to help develop the athlete's hurdling technique. Some of the drills may also be included in the more experienced athlete's warm up program for training and competition.

A. Stride pattern: Set up 6-10 cones, so that the athlete can take 7-8 strides to the first cone and then three strides between each. Focus on an uninterrupted sprint with seven strides to the first cone followed by a three-stride pattern between the cones. Make a note of the distances between the cones for future sessions.

B. Hurdle walking: The athlete performs the full hurdling skill at a walking pace over six or eight low hurdles set at approx. one meter spacing.

C. Stand approx half a meter from the first hurdle

D. Pick the lead knee up very high: Place the lead leg vertically down on the other side of the hurdle. The lower part of the leg should not reach out in front of the body. Bring the knee of the trail leg out to the side to above hip height with the foot cocked to clear the hurdle

E. Bring the trail knee across the hurdle: As the trail knee clears the hurdle, bring the knee up and to the front centre of the body Place the trail leg vertically down on the other side of the hurdle. The lower part of the leg should not reach out in front of the body.

F. Repeat the action with the new trail leg

G. Keep the hips high throughout the action

H. Good range of arm movement.

I. Trail leg isolation drill: This particular exercise is designed to work only the trailing leg. Use six to eight hurdles set initially at a lower than normal race height. The drill can be done using three strides or one stride between close spaced hurdles. The athlete first performs the exercise by walking down the side of the flight of hurdles taking only the trailing leg over the hurdle. The lead leg must go past the line of the hurdle before the trail leg is used. Once the drill has been mastered at a walking pace, it can then be conducted at a faster pace. The hips are kept high

throughout and the eyes should look ahead at the next hurdle. There should be a good range of arm movement, with the opposite arm leading the action. Quality of execution is more important than the speed it is conducted.

J. Lead leg isolation drill: This particular exercise is designed to work only the leading leg. Use six to eight hurdles set initially at a lower than normal race height. The drill can be done using three strides between close spaced hurdles. This drill is performed alongside the hurdle and should be conducted at a jogging pace. The athlete attacks the hurdle in the normal way but only takes the lead leg across it. The trailing leg trails alongside the hurdle. There should be a good range of arm movement, with the opposite arm leading the action. The hips are kept high throughout and the eyes should look ahead at the next hurdle. Quality of execution is more important than the speed it is conducted at.

2.5 LONG HURDLES (150M – 400M) GENERAL INFORMATION

Ralph Lindeman (1995), re-printed (2007) explored that: To be a good 400m hurdler you must also be a good 400m athlete. The 400m hurdle race is regarded as a 400m sprint. The difference in the time of a 400m flat race and 400m hurdles race should be 3-5 sec. depending on the level of fitness. Depending on the age and gender of the athlete: The distance of the race may vary between 200m to 400m, the height of the hurdle may vary between 68cm and 91.4cm and the amount of hurdles will also vary between 8 and 10 hurdles. The athlete must be able to hurdle with both legs in the long hurdle races. In the high hurdle races the athlete lead with only one leg. The athlete must have a definite stride pattern, e.g. the junior men novice 400m hurdler will take: 23 strides to the first hurdle, 15 strides to the 5th hurdle, 17 strides to the 8th hurdle, 19 strides to the 10th hurdle and 22 strides to finish. As the athlete become stronger, the strides between the hurdles will be less, e.g.: 21 strides to first hurdle; 13 strides to 6th hurdle, 15 strides to 10th hurdle and 16 strides to finish. It is recommended that the athlete pace himself/herself in such a way that he/she will lead with the left leg in the bend, Leading with the left leg around the bend will help the athlete to run closer to the inside line. There is also less chance of disqualification. When leading around the bend with the right leg, the left leg tends to trail alongside the hurdle instead of over the hurdle. The athlete must be able to judge the pace. External factors such as weather, track surface, lane draw and poor hurdle clearance will influence the stride pattern. The athlete must be able to adjust pace as needed during the race. When changing strides change

pace about half way between the two hurdles. This will lead to a more even pace the last five strides in approaching the next hurdle. When approaching a hurdle in the bend, move away from the inside line and pass over the middle of the hurdle. This will allow the athlete to run the first few strides after the hurdle in a straight line before following the curve again. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

The start and sprint approach to the first hurdle: The amount of strides for a novice long hurdler to the first hurdle in a 200m hurdle race will be 7-9 strides, For the 300m race it will be 24-27 strides due to the longer approach run of 50m, For the 400m race it will be 23-25 strides in the 45m approach run, The athlete leaves the blocks and must accelerate in the first 8-10 strides, The approach run is done the same as for the 400m flat race, Settle into a pace, which allow slight acceleration in the five strides before the hurdle, The adjustment of strides before the hurdle has an effect on the rhythm between the hurdles and Stay on the toes and keep the hips high as you approach the hurdle. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

Long hurdle technique: The approach run for the long hurdles is slower than the high hurdles. This allows for less body lean over the hurdle. The long hurdler is technically less skilled than the high hurdler. However, the hips must stay tall and move forward throughout the clearance to maintain the running rhythm. If the hips are dropped, horizontal speed will be lost and more strides will be needed to cover the distance. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

Stride pattern and running between hurdles: The hips must be directly above or ahead of the leading foot on touchdown. This will prevent the hips from dropping if they are above or ahead of the leading foot on touchdown, stride rhythm will not be disturbed and less energy will be used to get back into rhythm. A poor hurdle clearance will lead to rhythm problems. Keep the stride length as close as possible to the natural length. Get into a stride pattern as soon as possible after the hurdle. Count the strides as you run. That way he will know when to alternate legs. In the case of even numbers, e.g. 18 strides between hurdles the athlete will lead with alternating legs over the hurdles. For easy counting of the strides, the left leg can be counted every time it touches the ground. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

A race planning chart for 400m hurdles: The circles indicate the area where changing of rhythm is suggested in a 400m hurdles race in the first 6 hurdles at a set stride pattern with even numbers, e.g. 18 strides between each hurdle. This will require alternating the legs over hurdles up to the

beginning of the last bend. Add one stride to the rhythm e.g. 19 strides, up to the 8th hurdle (the end of the bend). Try to lead with your left leg around the bend. Leading with the left leg uses much less energy, due to less need for correction. If fatigue step in, add another stride after the 8th hurdle, e.g. 20 strides, which will require alternating legs again. Maintain this rhythm up to the end of the race. In the case of both the 200m and 300m hurdles, the first five hurdles must be run with uneven strides to avoid alternating legs. Lead with the left leg only. Add one stride to alternate as you approach the final straight (The sixth hurdle). (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

Run in: Concentrate on a good running technique as the athlete approach the straight e.g. high knees, on the toes, breathing, etc. Maintain concentration and stride rhythm and any form of weakness in your technique will show in this last stretch. (<http://www.bolandathletics.com/5-3%20Hurdling.pdf>)

Training factors for the 400 meters: According to (*Dr. Ralph. Mann, 2007*) Training for the 400 must address the factors that have been identified as essential to successful 400 meter performance. These factors are: Proper sprint mechanics aimed at mastery of ground contact phases in order to increase the economy of sprint efforts at high speeds. (*Gajer 2007*) stated that The development of Maximum Speed found that better 400 performers were able to achieve higher absolute and relative velocities (% of best 200 times).

Miguel and Machado,(2004) suggested : The development of Explosive Strength and Explosive Strength Endurance resulted in faster 400 meter performances while Ralph Mann,(2007) points out that 400 meter success is determined by the ability to generate great amounts of explosive strength at the proper time (combination of mechanics and strength).

Wilmore & Costill, (1994) studied that the development of the Metabolic Pathways are: Aerobic Power, Anaerobic Capacity and Anaerobic Power, A lactate Anaerobic Capacity and Lactate Tolerance. Training of these specific energy pathways through a variety of sprint training methods have shown to improve long sprint performance through strength gains, improvement in inefficiency of movement and speed of movement, aerobic capacity development and improvements in the muscles capacity to tolerate acid accumulation through development of buffering capacity. Both Maximum Strength and Explosive Strength exercises must be used in order to address both Intramuscular and Inter muscular coordination factors. Through the proper

mixing of Maximum and Explosive Strength exercises, Recruitment, Rate Coding and Synchronization can be optimally developed through use of exercises that coordinate the amount of force, speed of movement and precision of movement patterns applicable to effective sprint mechanics. Use of exercises that cover the entire Force-Velocity Curve, with an emphasis on moving the curve to left over time, cannot be done with a proper mix of Maximum, Explosive and Elastic Strength exercises. There seems to be a considerable amount of confusion among coaches about the need for Maximum Strength exercises to be included with Explosive Strength exercises in the training of sprinters. The idea that lifting heavy loads in a relatively slow manner is of no use to the high speed movements of sprinters needs to be revisited in light of the specific research findings provided in “Strength and Power in Sport”, (P.V. Komi, IOC Medical Commission, 1992). Some of these specific findings are listed below. High threshold Fast Twitch Glycolytic (FTG) Muscle Units are not recruited force exceeds 90% of Maximum Strength (pg. 250). Training with high velocity movements increases high velocity strength (pg. 263). The load to be overcome and the movement time are the main factors in developing Rate of Force Development. If the load to be overcome is light, IRFD (Initial Rate of Force Development) predominates. If the load to be overcome is high, then MRFD (Maximum Rate of Force Dev.) predominates. For movements with duration of 250ms or less (sprinting), both IRFD and MRFD are the main factors (pg. 381). Maximal Strength and Power are not distinct entities. Maximum Strength is the basic quality that influences power performance (pg. 383). Improvements in Power have been shown to result from high intensity strength training, jump training under increased stretching loads and movement specific exercises requiring muscular coordination training (pg. 384, 385). The use of training methods involving, maximal and near maximal contractions, cause a remarkable increase in RFD accompanied by an increase in movement speed (pg. 392). RFD directed training should take precedence in the Preparation Phases but not be eliminated at any time of the training year (pg. 392). Strength/Power Training Plans must address the training age of the individuals within the sprint group. Beginning/Novice sprinters require different considerations than Intermediate and Advanced athletes. For example, research shows that Maximum Strength increases will also lead to increases in Power and the ability to generate force at fast speeds, especially in less experienced athletes. Training plans for Beginning/Novice athletes should contain more emphasis on Maximum Strength development and the teaching of proper lifting mechanics. Each individual sprinter’s needs vary according to

body type, training age and current strength and power levels compared to their lean mass volume. Although all sprinters need a blend of Maximum Strength, Explosive Strength and Elastic Strength (along with Core Strength), the actual volume, intensity and frequency of each type of strength training needs to be adjusted for individual needs. Athletes with high levels of Maximum Strength would benefit from a greater emphasis of Explosive Strength. Once Maximum Strength is elevated to optimum levels, it can be maintained with minimal work and emphasis placed on Explosive Strength and higher intensity plyometric (Elastic Strength) work. Elastic Strength is also important to all sprinters but those sprinters who have lower levels of Maximum Strength would be exposed to injury if plyometric training at higher intensity levels is implemented without elevation of Maximum Strength to levels that allow for the increase of intensity in plyometric training. *Jim Hiserman, (2010)* can examine explanations and examples of the neural and physiological adaptations of maximum, explosive and elastic strength training methods. Training plans for Intermediate and Advanced athletes, while not abandoning Maximum Strength, can mix in more Explosive Strength exercises. Maximum Strength is the pre-cursor to Power and any drop in Maximum Strength will bring a corresponding drop in Power. The reason that M. Stone, Dr. A. Sands, (2007) investigated, the continued use of Maximum Strength Training throughout the Training Year because the increased Rate of Force Development continues to be transferable throughout the entire range of the Force-Velocity Curve. A better understanding for design considerations, based on training ages. Strength and Power Training exercise selection must take into consideration many other factors such as selection of proper volumes, proper intensities, rest intervals and integration into the overall sprint-training sessions. The difference between Maximum Strength and Explosive Strength training can be found in the load and speed of movement of the exercises. The following Foundational Strength/Power Training Exercises are categorized according to the specific types of (Maximum or Explosive) strength and their high correlation to sprint performance improvement.

2.6 400 METER HURDLE TRAINING: IDENTIFYING POTENTIAL ATHLETES

Identifying Potential Long Hurdlers: Identifying athletes who may have the potential for success in the 400/ 300 Hurdles begins with examining the physical attributes of athletes to see if they have the Bio-Motor factors required for success in the long hurdle races. The long hurdle races

require much more than Speed Endurance and modest hurdling skill. An examination of research and literature reveals that the same Bio-Motor abilities required for high level sprinters and jumpers is required for both short (110m and 100m) and long hurdlers. Elite long hurdlers display a rare blend of the Absolute Speed of a sprinter, Dynamic Mobility (especially in the hips) of a High Hurdler and Speed Endurance /Special Endurance of 400/800 runners. In addition, they have the innate steering abilities required of high-level horizontal jumpers as well as the ability to maintain a consistent rhythm and efficient speed distribution pattern throughout the race distance. In describing the physical and mental characteristics of successful long hurdlers, veteran 400 Hurdles Coach Ralph Lindeman (1995) states that the event “requires a combination of speed-endurance and hurdling skills along with a unique stride pattern between hurdles that requires special concentration throughout the race”.

Physical and Mental Attributes Of Potential Long Hurdlers: hurdling ability of a sprint hurdler and visual steering ability of a horizontal jumper. He points out that successful competitors have come from sprint, hurdle, jump and middle distance athletes. Thus, his Selection Criteria included the following: Sprint ability. Speed is the primary limiting factor in any speed/power event, Strength, with a mix of Absolute/Maximal Strength and Strength Endurance, Dynamic Mobility with special emphasis on the hips for efficiency in the hurdling movement and Aggressive Mental Attitude required maintaining concentration need to maintain the stride pattern and race distribution patterns throughout the race effort. (Polish coach and researcher, Janusz Iskra,(2006)suggested that: potential long hurdlers divides into three groups for the purpose of devising training programs specific to the various individual physical attributes. He feels that by dividing the hurdlers into 3 groups: Motor (speed or speed endurance), Technical (400H or 110/100HH) and Somatic (short or tall) he can best structure their training programs for specific strengths and weaknesses. In his view the ideal type of elite 400 hurdlers is hybrid of three different Bio-Motor abilities: Speed, Endurance and Rhythm although Janusz Iskra,(2006) states that this is, in theory only, as even the best 400 hurdlers do not show equal abilities in both technical and motor abilities

400-meter hurdle theory: According to Lindeman, R (1997), Los Altos, CA (1995): The following aspects of the 400m hurdles deserve a special emphasis:

1. The hurdler should strive to accelerate the last few strides into the hurdle.
 2. Leading with the knee is the single most important fundamental of efficient hurdle technique. A quick lead knee results in what is often called a "delayed trail leg", that is, the trail leg gets full extension at takeoff.
 3. The ideal stride pattern would be a consistent pattern of an odd number of steps between all hurdles. This odd step pattern (13's, 15's, 17's, 19's, etc., all the way) allows the hurdler to take all hurdles with the same lead leg preferably the left.
 4. The most valuable technique to be taught the developing hurdler is the ability to alternate lead legs over consecutive hurdles. The ability to make additional late-race adjustments is greatly enhanced if the hurdler can alternate lead legs efficiently. It is very important to be able to make any of these adjustments well in advance of the hurdle.
 5. The long hurdler who leads with the left leg has a definitive advantage over a right-legged hurdler. The hurdler with the left lead leg can run the entire curve on the inside of his or her lane. The hurdler with the right lead leg must move more to the outside of his lane to efficiently and legally clear the hurdles on the curve.
 6. Many 400m hurdlers make the mistake of "finishing" the race at the tenth hurdle, still 40m from the finish line. Making required adjustments in stride length and stride frequency well in advance of the final hurdle enables the hurdler to clear the hurdle efficiently. The hurdler then needs to begin a drive to the finish line, concentrating on sound sprinting mechanics. A high level of anaerobic endurance that results from including a large volume of speed endurance work in the training program is the key to a fast run-in from the last hurdle to the finish.
- A program for success: According to *Collop, C (1996)*, *Jarver (1997)* the technical aspect of 400-meter hurdle is the approach to the eighth hurdle. Even though there are 10 hurdles in a 400m race, it is at the eighth hurdle that technique and rhythm are testing to the extreme. It is at this point in the race that the lactic effect is starting to bite, the wind directions are likely to change, the position within the race is starting to become crucial, stride pattern may need to change whilst stride rhythm remains the same and good technique and hurdle clearance is essential. Unless total focus and concentration is directed to the job at hand, then the attainment of a successful outcome is unlikely. In the past, the problems experienced with this area of the race were simply repeated physically repeatedly, however, there was never enough actual training time or energy available

for the perfecting of this segment of the race. The use of imagery enables the athlete to perform numerous repetitions over this hurdle in order to perfect the segment.

2.7 LEARNING HURDLE DRILLS TO DEVELOP HURDLE SKILLS

MACKENZIE, B. (2001) suggested that the following drills could be done to develop hurdle skills:

Anisimova drill: Face the side of the hurdle. The lead foot clears back and forth over the edge of the hurdle. Stand on the toes. Keep the leading foot curled upwards (flexed). Keep the hips high.

Wall attack drill: Stand on the toes. Fall forward and lift the lead leg at the knee.

Throw the lower leg out just before hitting the wall while blocking with the opposite arm at the same time. Keep the toes flexed.

Trail leg drill: Put a hurdle 1 meter away from the wall. The height must be 8 cm lower than race height. Lean against the wall with the shoulders square, chest high, and the lead foot on the ground in front of the hurdle. Bring the trail leg forwards and backwards across the hurdle in a vertical half-circular motion.

High hips exercise: Put a hurdle 1 meter away from the wall. The height must be +/- 10 cm lower than race height. Hold on to the wall head high, with the lead foot on the ground next to the hurdle. Stand on the toes and keep the hips as high as possible. Bring the trail leg forwards and backwards across the hurdle in a half-vertical circular motion.

Stick drill: This drill is used to establish a hurdle rhythm. The athlete uses a falling start with a 7 or 8 stride approach to the first obstacle. The sticks are placed far enough apart to allow for a comfortable 3 stride or 5-stride pattern. Emphasis is on a smooth and relaxed rhythm over 8 to 12 sticks.

Low hurdles: It is a progression from the stick drill with the emphasis on hurdle rhythm. The hurdles are a minimum of 7 cm lower than the racing height and placed 20 to 50 cm closer than racing distance to facilitate a 3-stride pattern. For a 5-stride pattern, place the hurdles 50 cm further than racing distance.

Lead-trail leg drill: The aim of this drill is to improve the technique of the lead and trail leg actions on the hurdle. The heights and spacing of the hurdles, set alternately for a lead and trail leg clearance, are lower than race specifications. The aim of the athlete is to: Have a high knee action of the lead leg when attacking the hurdle. A good drive with a full extension of the driving

leg. An appropriate arm position for an effective clearance of the leg. The athlete must finish the clearance with the trail leg ending in a high knee position in front of the hurdle.

Hurdle endurance drill: Two sets of hurdles are placed in opposite direction in adjacent lanes. Athletes run over the first set of hurdles, run around a marker and run over the next set of hurdles in the adjacent lane, back to the start line. This exercise when done properly is very exhausting. Add more hurdles as the fitness of the athletes improve.

Altering distances between hurdles: Place five hurdles in five separate rows. The distance between the hurdles in each row is different. The distance between the hurdles in each row is further apart. The heights of the hurdles are lower than race height. The athlete runs a three-stride pattern over the first row hurdles and walk back. He then runs the next set of hurdles, which is further apart, etc. The purpose of this exercise is to teach the athlete to judge distance correctly

2.8 RULES FOR HURDLE EVENTS

(IAAF Rule Book, IAAF 17,rue Princesses Flores tine, B.P. 459, MC 98007, Monaco Cedex) reported, All rules applicable to sprinters are also applicable to hurdlers, Each hurdle shall be placed on the track so that the feet of the hurdle shall be on the side of the approach by the competitor, Purposely knocking over a hurdle or trailing a leg outside and below the level of the top rail leads to disqualification and The coach and athlete must check if the following specifications are correct according to the rules before the race starts: Event number and time, Male or female race, Age group, The distances of the races, Height of hurdles, Distance from start line to first hurdle, Distance between hurdles, Correct amount of hurdles and Distances from the last hurdle to the finish line

2.9 CLEARANCE TECHNIQUE DIFFERENCES IN THE HIGH AND 400M HURDLES

Basic technique: *According to (Brent McFarlane 1981)* a number of factors affect the clearance position across the hurdle top and effective clearance is determined at the take-off. Favorable qualities here are speed, body height (particularly for men's high hurdles), flexibility and coordination. These qualities allow for a good thrust at the take-off, due to a slightly shorter last stride, and a high and fast pick-up of the lead leg knee. The body will be projected almost horizontally with a lean across the hurdle, as the fast knee and the thrust result in a good split position. As the leading leg is lifted, the foot should be kept pointing upwards. With the foot down, the lead leg will lock prior to the heel reaching the hurdle. "If this action is held during the

clearance, a delayed landing will result. The lead knee should cross the hurdle in a slightly flexed position to ensure an efficient and fast cut-down and landing.” The hips and shoulders are kept square to the front from the take-off to the landing. The speed of clearance is determined by the lead leg speed. As the lead leg is lifted, the opposite arm is pushed forward in a position parallel to the lead leg. As the trail leg is swept through late, but fast, with the lower leg folded behind, the leading arm is brought down and around the trail knee. This occurs at the same time as the lead leg is on the downward path and the trunk is rising. The trail arm, tucked in beside the body in a normal sprinting position, comes forward with the trail leg. The trail leg knee continues its sweep until it is in front of the body. The arms do much to keep control and balance the body. They should be bent at the elbows and kept as close to the body as the hurdling action allows. The leading arm is of particular importance. Its elbow should lead the movement on the backward sweep to avoid a straight-arm sweep that is difficult to control. If the hand continues on a wide backward path, without being brought into the side of the body, the hurdler will twist to the lead arm side on the landing.

Technique differences: The above is a description of a normal hurdling action. What differences then occur between men’s high hurdles at 106.7 cm and men’s 400 meters hurdles at 76.2cm in height? Generally, the technique of the hurdle clearance is similar but due to the different hurdle heights certain modifications occur. For any athlete, the higher the hurdle becomes, the greater the lean required over it. This is to keep the flight path of the centre of gravity over the hurdle as horizontal to the ground as possible. Because the women high hurdler’s centre of gravity is usually above the hurdler’s height, they do not have to learn as much as the men do for their high hurdles event. With lower hurdles, the use of the lead knee and the trail knee is also not as great as for the high hurdles. The arm action of the women high hurdlers tends to move more across the body than for the men. The men need to get the lead arm well forward to assist the drive at the hurdle. The women do not need this arm extension and tend to take the forearm across to the mid-line of the body, ready to whip it back down around the trail knee. The upper arm remains parallel to the lead leg and should not be pushed across the body. With the low hurdles at 76.2, the centre of gravity is well above the barrier. There is no need for an aggressive body dip to clear these hurdles. The only lean required is, good sprinting technique. Thus, for low hurdles the legs need to be raised only slightly for the clearance to be effective and it is not necessary to bring the trail knee to hip level. Therefore, hip flexibility is not of as important as it is in the

men's high hurdles and, to a lesser extent, the women's high hurdles. The men's 400m hurdlers are not as vigorous in their action as the high hurdlers because the economy of the effort becomes an important factor. The clearance technique is somewhere between that of the high and the women's 400m hurdles. Less body lean and flexibility is required than for the high hurdles but the lead arm still reaches forward to aid the lean across the barrier.

Performance studies: (*Dolgij of the U.S.S.R 1982*) studied that: The performances in 400m hurdles and how to improve them has been the subject of scrutiny of a number of studies and the results are of interest to every coach and athlete involved in this event. For example, in an attempt to establish basic performance factors that will lead to the most effective training methods, studied the performances of world record holders from 1962 to 1976, as well as Soviet athletes in the 400m hurdles. He noticed the similarity in the 110m hurdles times of Hemery, Akii-Bua and Moses, as well as the U.S.S.R. record holders Litujev, Anisimov and Sokomorochov. These athletes all clocked times between 14.3 to 13.5 seconds for the high hurdles leading to the conclusion that "their high hurdling ability obviously allows for an easy clearance of the lower obstacles in the longer race" (*Dolgij, 1976*) also compared the results of physical performance components of the hurdlers and found that the specialist high hurdlers had a superior level of performance capacities. The analysis showed that, although performers in the two events had a close average speed, the development of power differed considerably. The high hurdlers were superior in strength and power. Most interesting were the differences in jumping power, where the high hurdlers averaged 15.4cm better jumps in the standing long jump, 26.6cm in the standing triple jump, and 49.6 cm in the long jump and 12cm in the high jump. The results were based on 50 hurdlers with times in the 49.1 to 53.9 sec. range in the 400m event and 13.7 to 14.8 sec. in the 110m event. The 400m hurdles require that physical fitness and hurdling technique be developed together. That is to say, that technique is related in training to other performance factors, such as co-ordination, endurance, power, mobility, speed and strength. Because of this, it has been suggested that high hurdles should be an important part of training for the 400m hurdlers. To quote (Bulalschnick,1983) "The high hurdles make heavy demands on power development and 400m hurdlers can benefit considerably by reaching the same level". The same author has advanced a formula that indicates whether an athlete has reached his 400m hurdles potential. The formula appears to be reliable and assists coaches to adjust the training. It is based on the number 800 divided by the sum of the average 110m hurdles and 400m flat speeds

(m/sec.). Calculations have indicated that a 0.1 sec. improvement in the 110m hurdles time allows for a potential improvement of 0.18 sec. in the 400m hurdles. An improvement of 0.1 sec. over 400m flat, on the other hand, will only give a 0.06 sec. improvement over the 400m hurdles. An improvement over the high hurdles is therefore potentially worth three times the same improvement over 400m flat. This does not mean that the 400 flat times can be disregarded but places the importance of the high hurdles in

2.10 NUTRITION

The goal of many power and sprint athletes is to enhance muscle mass and strength through specially designed resistance training programmes. In most cases, these athletes believe that their food focus should be on protein intake. In fact, there is no evidence that very high intakes of protein are necessary or even advantageous for optimizing the results of resistance training. It is likely that the best results are achieved through enhanced recovery strategies such as providing a source of protein and carbohydrate immediately after the workout.

Many power and sprint athletes forget to bring a drink bottle to training. However, workouts are best undertaken when the athlete is well-hydrated and well-fuelled. Fuelling with a sports drink can help the athlete to keep lifting or training with a good technique, right to the end of a long session.

There are numerous supplements that are claimed to promote recovery, increase muscle mass, reduce body fat and enhance performance. These claims are attractive to all athletes, but seem particularly entwined with the world of body building and strength training. Many athletes are not aware that the claims made for most products are unsupported or exaggerated, and that the industry operates with little regulation. (<http://www.iaaf.org/mm/document/imported/42817.pdf>)

Competition issues (<http://www.iaaf.org/mm/document/imported/42817.pdf>)

Most sprint events are conducted over a short time, with minimal impact on fluid and carbohydrate levels. However, competition can require the athlete to compete in a series of heats, semis and finals, or with long periods between rounds of a field event or multi-sport competition. This calls for special eating strategies to recover between events or to manage fluid and energy levels over a long day. (<http://www.iaaf.org/mm/document/imported/42817.pdf>)

Eating strategies for power and strength athletes

A key ingredient in a plan designed to enhance muscle size and strength is adequate energy intake. Energy should be supplied both by carbohydrate-rich foods that provide fuel for training as well as protein- and nutrient-rich foods that can provide building blocks for the results.

Recent evidence suggests that enhanced effects on protein balance are achieved by following up a resistance workout with a meal or snack providing a good source of high-quality protein soon after the session.

A few supplements and sports foods provide valuable benefits to the athlete's training and competition programme. It is important for the athlete to seek up-to-date and independent advice from a sports nutrition expert to identify these products and how to use them to suit the athlete's current programme, budget and performance goals

<http://www.iaaf.org/mm/document/imported/42817.pdf>

2.11 COACHING ROLES AND SKILLS

"I also believes the role of the sports coach is to create the right conditions for learning to happen and to find ways of motivating the athletes. Most athletes are highly motivated and therefore the task is to maintain that motivation and to generate excitement and enthusiasm. The role of the coach could be quite daunting since the above implies what could be construed as quite some responsibility, especially for the part-time non-professional. *MACKENZIE, B. (2005)*

Coaching roles:

The roles that you will find you undertake as a coach will be many and varied and you will find at some stage in your coaching career that you will be, but not limited to:

Advisor - Advising athletes on the training to be conducted and suitable kit and equipment.

Assessor - Assessing athletes performance in training and in competition

Counselor - Resolving emotional problems on the basis that sharing anxieties can be both

relieving and reassuring.

Demonstrator - Demonstrate to the athletes the skill you require them to perform.

Friend - Over the years of working with an athlete a personal relationship is built up where as well as providing coaching advice you also become someone, a friend, who they can discuss their problems or share their success with. It is important to keep personal information confidential because if you do not then all respect the athlete had for you as a friend and coach will be lost.

Facilitator - Identify suitable competitions for them to compete in to help them achieve their overall objectives for the year.

Fact finder - Gathering data of national and international results and to keep abreast of current training techniques.

Fountain of knowledge - This may be part of the advisor role in that you will often be asked questions on any sporting event, events that were on the television, diet, sports injuries and topics unrelated to their sport.

Instructor - Instructing athletes in the skills of their sport.

Mentor - When athletes attend, training sessions you are responsible, to their parents and family, for ensuring that they are safe and secure. You have to monitor their health and safety whilst training and support them should they have any problems or sustain any injuries.

Motivator - Maintain the motivation of all the athletes the whole year round.

Organizer and planner - Preparation of training plans for each athlete and organize attendance at meetings and coaching clinics.

Role model - A person who serves as a model in a particular behavioral or social role for another person to emulate. The way you conduct yourself whilst in the presence of your athletes provides an example of how they should behave - what sort of example should we be providing to

someone else's children? Perhaps one of the most important roles of a coach.

Supporter - Competition can be a very nerve racking experience for some athletes and often they like you to be around to help support them through the pressures. Role of a 'Friend' and perhaps 'Counsel or' come in here to. *MACKENZIE, B. (2005)*

Coach/athlete training roles:

The roles of the coach and athlete in determining training requirements will change over the time an athlete is with a coach. When an athlete first starts in a sport/event (cognitive stage) the coach's role is to direct the athlete in all aspects of training (telling or showing coaching style).

As the athlete develops and demonstrates a sound technical understanding (associative stage) of the sport/event then gradually the coach's role changes to one where the coach and athlete discuss and agree appropriate training requirements (involving coaching style). As the athlete matures and demonstrates a sound understanding of training principals (Autonomous stage) then the athlete will determine the training requirements. The coach's role becomes one of a mentor providing advice and support as and when required. *MACKENZIE, B. (2005)*

Coaching skills:

As a coach, you will initially need to develop the skills of: organizing, safety, building rapport, providing instruction and explanation, demonstrating, observing, analyzing, questioning and providing feedback.

Organizing: In organizing the training session, you need to plan in advance how you will manage the athletes, equipment and area - group athletes accordingly to numbers, ability and the activity – continually check the plan is safe during the session.

Safety: In providing a safe environment for the athletes, you must assess the risk of: the area, equipment and athletes - continue to assess risk throughout the session - keep athletes on the set task and follow correct practice and progressions.

Building Rapport: In building rapport with the athletes learn and use their names, smile and make eye contact, coach the athlete rather than the sport, show interest in and respect for the athletes.

Instruction and explanation: In providing Instruction and Explanation you should think about and plan, what you are going to say, gain the athlete's attention, keep it simple and to the point and check, they understand by asking open questions.

Demonstration: In providing demonstration make sure you are in a position where the athletes can clearly see you, focus on only 1 or 2 key points, repeat the demonstration 2 or 3 times (side, back and front view), ask if they have any questions and check they understand by asking open questions. There are times when it might be more appropriate to use someone else to provide the demonstration.

Observation and Analysis: In observing and analyzing break the action down into phases, focus on one phase at a time, observe the action several times from various angles, compare the action with your technical model and if appropriate determine what corrective action is required. Remember your ears can also be used to observe - e.g. listen to the rhythm of the feet of the hurdler.

Feedback: In providing feedback encourage the athlete to self analyze by asking appropriate open questions, provide specific and simple advice, limit the advice to 1 or 2 points, check they understand what they will do next and make the whole process a positive experience for the athlete.

Philosophy for Coaching the Hurdles:

The hurdler's most important physical asset is speed. The key to success is maintaining speed between hurdles. This is where rhythm becomes a key ingredient. Nine factors can be identified as contributing to successful hurdling: speed, rhythm, technique, flexibility (which includes range-of-motion), strength, stamina (to maintain proper technique), poise and body type (especially leg length). Of these nine factors, all but the hurdler's body type can be greatly enhanced by proper training. *MACKENZIE, B. (2005)*

Coaching principles. Is Coaching an Art or a Science?

Science: To support the coach there is a wealth of scientific information based on research conducted with athletes. Information is available to support the coach and athlete in all areas of training and development including nutrition, biomechanics, psychology, physiology & medicine. There are a number of scientific methods to measure and analyze the athlete's performance e.g. computer aided analysis of VO2 max, lactate levels, running technique etc.

Art: The art of coaching comes when the coach has to analyze the scientific data and convert it into coaching and training programs to help develop the athlete. This analysis process relies heavily on the coach's experience and knowledge of the event/sport and the athlete concerned. By understanding the science, which is the foundation of training, a well-designed training program can be developed that will help an athlete reach their full potential. So is coaching the art of understanding the science and then applying it?

The practical application of any training theory relies on the ability of the coach to “unfold the art.” The art of coaching takes into account common sense, intuition, and perceptions. Transferring theory into practice when planning the training program can be made easy with a training menu system or inventory. This piece of guidance can make a significant impact in any training program. Use of training inventories can better enable the coach to set up and follow the overall flow of an annual plan. Planning is essential to, coaching since there is so much information needed to organize a training program. Inventories will be able to categorize each area, for you to then choose the appropriate exercises. As with any training program,, there is a need to continually assess and monitor. A coach can do this through testing, biomechanical evaluation/film analysis; postural/alignment/joint stability checks; tactical and technical evaluations; specific endurance evaluation; and performances. Coaches should then make adjustments accordingly. It is advisable for the coach to experiment throughout the year to find the optimal means of eliciting peak performances at the proper time. It is important for the coach to record or write down as much information as possible in addition to the overall periodized plan. A coach should write a justification for each segment of the training plan, important observations at practices or at competitions, how the athletes respond to you, others, and training.

Many works with dozens of athletes during a year and this assists the coach in retaining critical information for each individual. Developing the hurdler physically is just part of the challenge in coaching. Athletes in my program are developed from a holistic standpoint. The concept here is based on development of mind, body and soul together. Encouragement and support to become good citizens, successful students, and quality people is the first and foremost objective that any coach can be proud of. *MACKENZIE, B. (1997) Coaching Principles*

Coaching Process:

The coaching process comprises of three elements:

Planning - developing short and long term training programs to help your athlete achieve their goals

Conducting - delivery of training programs

Evaluating - evaluation of the programs, athlete development and your coaching. This element may result in adjustment of your athlete's training program and your coaching

2.12 BIOMOTOR ABILITIES

Fitness has been defined as how well a person is adapted to and capable of living a certain lifestyle. The athlete obviously has greater fitness than the non-athlete because of his training does for a chosen event or events. Nevertheless, what is fitness made up from? The law of specificity states that there is a specific response to the specific nature of a training load. This specific response will tend to emphasize one or more of the abilities that make up fitness. These abilities are basic and respond well to training. Since these abilities affect how the body moves, they are given the name "Bio motor abilities". There are five basic bio motor abilities:-

Strength

Muscular strength is the ability of the body to exert force. Strength is important to every event for both men and women. Muscle fibers within the muscles respond when subjected to weight or

resistance training. This response makes the muscle more efficient and able to respond better to the central nervous system. Strength may be broken down into three types:

Maximum Strength: This is the greatest force that a contracting muscle can produce. Maximum strength does not determine how fast a movement is made or how long the movement can be continued. It is important in events where a large resistance needs to be overcome or controlled.

Elastic Strength: Elastic strength is the type of strength required so that a muscle can move quickly against a resistance. This combination of speed of contraction and speed of movement is sometimes referred to as "power". This special type of strength is of great importance to the "explosive" events in running, jumping and throwing.

Strength Endurance: This is the ability of the muscles to continue to exert force in the face of increasing fatigue. Strength endurance is simply the combination of strength and duration of movement. Performing an exercise, such as sit-ups, to exhaustion would be a test of strength endurance. This strength characteristic determines an athlete's performance where a movement is repeated over a long period. Runs between 60 seconds and 8 minutes, for example, require a lot of strength endurance

Endurance

Endurance refers to the ability to perform work of a given intensity over a period, and is sometimes called stamina. The main factor, which limits and at the same time affects performance, is fatigue. An athlete is considered to have good endurance when he does not easily fatigue, or can continue to perform in a state of fatigue. Endurance, of all the bio motor abilities, should be developed first. Without endurance, it is difficult to repeat other types of training enough to develop the other components of fitness. There are two basic types of endurance:

Aerobic Endurance: Aerobic means "with oxygen" and aerobic endurance means muscular work and movement done using oxygen to release energy from the muscle fuels. We have seen how the absorption and transport of the oxygen to the muscles is carried out by the cardio-respiratory system. Aerobic training leads to both a strong cardio-respiratory system and an increased ability

to use oxygen in the muscles. Aerobic endurance can be developed by continuous or interval running. The longer the duration of an event the more important is aerobic endurance. Aerobic endurance should be developed before anaerobic endurance.

Anaerobic Endurance : Anaerobic means "without oxygen" and anaerobic endurance refers to The energy systems, which allow muscles to operate using energy, they already have in store. Anaerobic training allows the athlete to tolerate the buildup of lactic acid. There are two important types of anaerobic endurance, speed endurance and strength endurance. Developing speed endurance helps an athlete to run at speed despite the buildup of lactic acid. Strength endurance, which has already been discussed, allows the athlete to continue to express force despite the lactic acid build up.

Speed

Speed is the capacity to travel or move very quickly. Like all bio motor abilities speed can be broken down into different types. It may mean the whole body moving at maximal running speed, as in the sprinter. It may involve optimal speed, such as the controlled speed in the approach run of the jumping events. or, it may include the speed of a limb, such as the throwing arm in the shot or discus, or the take-off leg in the jumps

Flexibility

Flexibility is the ability to perform joint actions through a wide range of motion. The natural range of motion of each joint in the body depends on the arrangement of tendons, ligaments, connective tissue and muscles. The limit to a joint's range of motion is called the "end position". Injuries can occur when a limb or muscle is forced beyond its normal limits. Flexibility training can help reduce the risk of injury by gradually increasing a joint's range of motion.

Restricted flexibility is one of the most common causes of poor technique and performance. Poor flexibility also hinders speed and endurance since the muscles have to work harder to overcome the resistance to an efficient stride length. Flexibility tends to decrease, as we get older, while

females are usually more flexible at all ages. The idea is to start young athletes on regular stretching programmes to prevent the loss of flexibility that comes with age.

Coordination

Coordination is the ability to perform movements of various degrees of difficulty very quickly and with efficiency and accuracy. It is considered that an athlete with good coordination is capable not only of performing a skill well, but also of rapidly solving a training task. The bio motor abilities have been presented separately to identify the characteristics of each. In practice, there is no such thing as a "pure" strength exercise or a "pure" speed exercise. The bio motor abilities are components of overall physical fitness and an understanding of their inter-relationship allows the coach to plan training more effectively. *(FROM: IAAF "Introduction to Coaching Theory")*

2.13 IDENTIFYING AND DEVELOPING ELITE HURDLERS.

According to (Korchemny, 1996 and Stepanov, 1989) the development of elite hurdlers requires approximately six to eight years of specialized training and an additional four years of general physical conditioning to reach top performance. Fifty per cent of the world's best 400m hurdlers are over 27 years old and average age of the female world class 100m hurdler is between 24-30 years of age. With this in mind, the U.S. continually looks to the college coach to target this select group of upcoming hurdlers and develop them accordingly. The high school or club coach is responsible for the development during the ages of 14-17. The idea of periodization in setting up a training program is a must for progress. A good coach will be able to train all athletes together early in their program with the focus on developing all the bio motor capabilities. Once prospective hurdlers are identified, an introduction and encouragement to the hurdle events is necessary. Special attention must be given to developing horizontal velocity, mechanical efficiency, mobility of the hip joint, and hurdle rhythm. Following sound sprint training and

exercise selection principles, such as sequencing, is certain to be a critical asset to the training program and hence overall development. It should be noted that many coaches find it difficult to transfer the planning and organization of training to the actual practice.

Intermediate hurdles for novices (*Chernock, R1997*) suggested that: - It is the purpose of this article to make some recommendations for the beginner and for the "journeyman" intermediate hurdlers who may never master the techniques or have the champion's abilities. With these athletes, in the beginning, the hurdles should be separated at any arbitrary distance under 20 yards so the beginner can immediately start to develop what the author calls the "eye-lead leg coordination." This is the ability to recognize, 10 to 15 yards in advance, which lead leg will come up at the next hurdle so the runner does not "chop" his steps. Coaches should begin immediately to get the athlete to hurdle with either leg as a lead. All workouts should be finished over the last intermediate hurdle so the athlete is constantly practicing running over the last hurdle without chopping steps. Stutter stepping is the worst fault an intermediate hurdler can develop.

2.14 DEVELOPMENT OF TRAINING PROGRAM.

According to MACKENZIE, B. (2004) Training is a systematic process with the objective of improving an athlete's fitness in a selected activity. And it is a long term process that is progressive and recognizes the individual athlete's needs and capability. To improve skill and performance, athletes, led by the coach, must meet the training objectives.

The process of creating a training program to help develop an individual's level of fitness comprises of 6 stages: Stage 1 - gather details about the individual, Stage 2 - identify the fitness components to develop, Stage 3 - identify appropriate tests to monitor fitness status, Stage 4 - conduct a gap analysis, Stage 5 - compile the program and Stage 6 - monitor progress and adjust program

Stage 1: The first stage is to gather details about the individual: Age, Reasons for wanting to get fit, Current or recent injuries, Health problems, the sports they play and how often, their dislikes and likes with regards training and what sports facilities they have access to - gym, sports centre

etc. Prior to starting any training, it is recommended you have a medical examination to ensure it is safe for you to do so.

Stage 2: The second stage is to determine what components of fitness they need to improve. This will depend upon what the individual wants to get fit for - to improve general fitness, get fit enough to play in the Saturday hockey league, run a local 5 km fun run or compete in next year's London Marathon. Exercise scientists have identified nine elements that comprise the definition of fitness. The following lists each of the nine elements and an example of how they are used: Strength - the extent to which muscles can exert force by contracting against resistance (holding or restraining an object or person), Power - the ability to exert maximum muscular contraction instantly in an explosive burst of movements (Jumping or sprint starting), Agility - the ability to perform a series of explosive power movements in rapid succession in opposing directions (ZigZag running or cutting movements), Balance - the ability to control the body's position, either stationary (e.g. a handstand) or while moving (e.g. a gymnastics stunt), Flexibility - the ability to achieve an extended range of motion without being impeded by excess tissue, i.e. fat or muscle (Executing a leg split), Local Muscle Endurance - a single muscle's ability to perform sustained work (Rowing or cycling), Cardiovascular Endurance - the heart's ability to deliver blood to working muscles and their ability to use it (Running long distances), Strength Endurance - a muscle's ability to perform a maximum contracture time after time (Continuous explosive rebounding through an entire basketball game), Coordination - the ability to integrate the above listed components so that effective movements are achieved of all the nine elements of fitness cardiac respiratory qualities are the most important to develop as they enhance all the other components of the conditioning equation. You will need to consider which of these elements are applicable to the individuals training program based on what it is they want to get fit for.

Stage 3: The next stage is to identify appropriate tests that can be used to initially determine the individual's level of fitness and then to monitor progress during the training. The evaluation test page identifies suitable tests for each of the fitness elements. Identified test should be conducted and the results recorded

Stage 4: We now know the individual's background, objectives and current level of fitness. We

now need to conduct a gap analysis of the current fitness levels (from test results at stage 3) and target fitness levels (identified at stage 2). The results of this process will assist in the design of the training program so that each component of fitness is improved to the desired level.

Stage 5: The next stage is to prepare a training program using the results of the gap analysis and FITT principles. F - frequency - how often should the individual exercise, I - intensity - how hard should the individual exercise? T - Time - how long should each session last? And T - training activity - what exercise or training activity will help achieve the individual's fitness goals? For frequency, intensity and time you should start at an easy level and increase gradually e.g. 10% increments. Aerobic training should last for 20 to 40 minutes. Strength work should last 15 to 30 minutes and comprise of 3 sessions a week with 48 hours recovery between sessions. Plan the program in four week cycles where the workload in the first three weeks increase each week (easy, medium, hard) and the fourth week comprises of active recovery and tests to monitor training progress. The aim of the four week cycles is to: Build you up to a level of fitness (3 weeks), Test, recovery and adjustment of the training program (1 week), Build you up to higher level of fitness (3 weeks), Test, recovery and adjustment of the training program (1 week), Build you up to an even higher level of fitness (3 weeks) and so on, The tests used to assess the individual's initial level of fitness should be planned into week 4 of the program in order to monitor progress and effectiveness of the program. The test results can be used to adjust the program accordingly. The program needs to last 12 to 16 weeks in order to see any real benefits and the planning (initial & subsequent adjustments) should be conducted with the individual so that they feel they own the program. This will ensure the program is enjoyable and convenient to do.

Stage 6: The program has now been agreed and the individual can undertake the program. Every 4 weeks meet and discuss with the individual: How the training has gone, The test results, Progress towards target fitness levels and Adjustments to the training program

2.15 TRAINING THEORY FROM

In athletics, records are made to be broken. Men and women around the world continually challenge and improve upon past performances in all events. These improvements in performance

are generally a result of higher levels of fitness. This fitness comes from an improved understanding by coaches and athletes of training and its effects. Training theory is the bringing together of all information about athletics from social and scientific sources. The coach uses this information; along with the knowledge, he/she has of the athlete, to produce effective training programmers.

What is fitness? Fitness is how well a person is adapted to and capable of living a certain lifestyle. The fitness of an athlete is generally greater than that of the non-athlete. The athlete needs to be fit for the demands of his chosen athletic event in addition to being fit for the demands of day-to-day living.

What is training? Training is a systematic process with the objective of improving an athlete's fitness in a selected activity. A long-term process is progressive and recognizes the individual athlete's needs and capabilities. Training programmers' use exercise or practice to develop the qualities required for an event. The process of training can be planned because training follows certain principles. These principles of training need to be fully understood before the coach can produce effective long-term programmers'. The three most important of these principles are: Law of Overload, Law of Reversibility and Law of Specificity

Law of overload: The human body is built up of millions of tiny, living cells. Each type of cell or group of cells carries out a different job. All cells have the ability to adapt to what is happening to the body. This general adaptation takes place inside the body all the time. There is also an adaptation to the training for athletics. A training load is the work or exercise that an athlete performs in a training session. Loading is the process of applying training loads. When a new training load challenges an athlete's fitness there is a response from the body. This response by the body is an adaptation to the stimulus of the training load. The initial response is of fatigue. When the loading stops, there is a process of recovery from the fatigue and adaptation to the training load. This recovery and adaptation returns the athlete not just to his original fitness level, but also to an improved level. This higher level of fitness is achieved through the body's overcompensation to the initial training load. Therefore, overload causes fatigue, and recovery and adaptation allow the body to overcompensate and reach higher levels of fitness. The body's

ability to adapt to training loads and overcompensate in recovery explains how training works. If the training load is not great, enough there is little or no overcompensation. A loading that is too great will cause the athlete to have problems with recovery and he may not return to original levels of fitness. This condition is caused by overtraining.

Law of reversibility "it you don't use it, you lose it": If the athlete is not exposed to regular training, there is no loading and the body has no need to adapt. This is shown in the illustration of the law of overload, where the fitness level of the individual returns slowly to the original level. For training to be effective, the coach must understand the relationship between adaptation, the law of overload and the law of reversibility. Fitness improves as a direct result of the correct relationship between loading and recovery. The term progressive overload is used to explain that increasing levels of loading will lead to progressive adaptation and overcompensation to higher levels of fitness. These increasing levels of loading would include such things as a higher number of repetitions, faster repetitions, shorter recovery times and heavier weights. When the coach continually applies, the same training load to an athlete there is an initial increase in fitness to a certain level and then the athlete remains at that level. Once the body has adapted to a particular training load adaptation ceases. Similarly, if the training loads are too far apart the athlete's fitness level will keep returning to original levels. Widely spaced loading will produce little or no fitness improvement. We have seen that different training loads have different effects on an athlete's recovery. An excessive training load causes incomplete adaptation and the athlete will have problems with recovery from the training stimulus. These problems with recovery can also be cumulative. This occurs when the loading is repeatedly too great or too closely spaced. The decline in performance caused by incomplete adaptation is one of the most obvious symptoms of overtraining. In this situation, the coach must allow time for proper recovery and should evaluate and reduce the training loads used. The ratio of load to recovery is called the Training Ratio. Determining the correct training ratio for an individual athlete is one of the ways in which the coach produces optimal levels of improvement in both fitness and performance. With a young athlete the ratio may be 1:4, while a mature, experienced athlete may need 1:2. In practical terms the recovery is not necessarily a complete rest, but could be a lighter or easier training load. This can be seen in the very successful training philosophy for the mature athlete of alternating hard and easy days, and hard and easy weeks. The younger athlete may respond well to a

hard/easy/easy format, or need an even lighter loading.

Law of specificity: The law of specificity states that the specific nature of a training load produces its own specific response and adaptations. The training load must be specific to both the individual athlete and to the demands of their chosen event. This may be obvious when comparing the demands of events such as marathon and shot. It is less obvious, but just as important when planning the training of a 200-meter specialist compared with a 400-metre specialist. Alternatively, a 100-meter hurdler compared with a 400-meter hurdler. General training must always come before specific training in the long-term plan. The general training prepares the athlete to tolerate the loadings of specific training. The volume of general training determines how much specific training the athlete is able to complete. The greater the volume of general training the greater the capacity for specific training.

Summary of training principles

The body is capable of adaptation to training loads, Training loads of the correct intensity and timing cause overcompensation, Training loads that increase progressively cause repeated overcompensation and higher levels of fitness, There is no increase in fitness if loading is always the same or too far apart, Overtraining or incomplete adaptation, occurs when training loads are too great or too close and Adaptation is specific to the specific nature of the training. In addition to the basic principles of adaptation, overload, reversibility and specificity there are three other principles that we should consider as coaches in setting out the training plan for an athlete.

Principle of individualization the individual's response to training: Each individual is unique. Each individual brings to athletics his own capabilities, capacities and responses to training. Different athletes will respond to the same training in different ways. There is no such thing as an ideal training program that will produce optimal results for everyone. You, as the coach, need to understand the principles of training and apply them with your knowledge of the individual athlete. This knowledge should be of the many factors that affect the planning of the individual athlete's training programme. These factors include heredity, developmental age and training age.

Heredity: Athletes inherit physical, mental and emotional characteristics from their parents.

These inherited characteristics should be recognized by the coach. Systematic training can modify many of these characteristics, but the extent to which they can be changed and modified will be limited by the inherited potential. Not every athlete has the inherited potential to be an Olympic champion. All athletes have the ability to make the most of what inherited potential they do have.

Developmental age: Our knowledge of growth and development tells us that young athletes of the same chronological age can be at very different levels of maturity. Individuals of the same chronological age can often be up to four years apart in their developmental or biological ages.

Training age: Each individual athlete has a different level of fitness and experience. The length of time an athlete has been training will affect their fitness level and capacity for work. Training age must be considered and is simply the number of years an athlete has trained. The following table helps to explain the importance of considering biological and training ages as well as chronological age. In the second situation shown in the table, the athletes' capacities for work may be similar, but the individual responses to training will still need to be considered.

Principle of variety: Training is a long-term process and loading and recovery can quickly become boring for the athlete and the coach. The successful coach will plan variety into the training programme to maintain the athlete's interest and motivation. In training for athletics, a change is often better than a rest. This change and variety can come from such things as changing the nature of the exercise, the environment, time of day of the session and the training group. Variety is an area in which the coach can be at his most creative.

Principle of active involvement: The performance of an athlete is a result of the combination of an athlete's efforts and the coach's skill. The last principle we shall consider is perhaps the most important. Without it a successful training programme cannot be started. The principle of active involvement in training means simply that for a training programme to be fully effective the athlete must want to actively and willingly participate. This participation and involvement should go beyond how an athlete behaves in the presence of the coach. It requires that the athlete's actions in all aspects of his lifestyle contribute to successful performance. The athlete will need to be educated in this responsibility and then encouraged to fully accept the responsibility for

him.(IAAF "Introduction to Coaching Theory")

Table 1 History of world records electronically timed

(<http://en.wikipedia.org/wiki/100meters.hurdles.>)

Time	Athlete	Nation	Date	Place
12.21 s	<u>Yordanka Donkova</u>	<u>Bulgaria</u>	August 21, 1988	<u>Stara Zagora</u>
12.25 s	<u>Ginka Zagorcheva</u>		August 8, 1987	<u>Drama</u>
12.26 s	<u>Yordanka Donkova</u>		September 7, 1986	<u>Ljubljana</u>
12.29 s			August 17, 1986	<u>Cologne[1]</u>
12.34 s			August 17, 1986	<u>Cologne</u>
12.36 s	<u>Grażyna Rabsztyń</u>	<u>Poland</u>	June 12, 1980	<u>Warsaw</u>
12.48 s			June 18, 1979	<u>Warsaw</u>
12.48 s			June 10, 1978	<u>Fürth</u>
12.59 s	<u>Annelie Ehrhardt</u>	<u>East Germany</u>	September 8, 1972	<u>Munich</u>

Table 2 Ethiopian records in athletics

MEN	RECORD	ATHLET	DATE	MEET	PLACE
110m hurdles	15.04	Zelalem Chemdesa	3 May 2008	African Championships	Addis Ababa, Ethiopia
400 m hurdles	51.26	Aschalew Tesfaye	1 September 1988	African Championships	Annaba, Algeria
WOMEN					
100m hurdles	15.22	Asegedech Bekele	16 Sept 1995	All-Africa Games	Addis Ababa, Ethiopia
400m hurdles	57.60 A	Zewde Haile Mariam	8 August 1987		Nairobi, Kenya

Table 3 1st Ethiopian clubs athletics championships

Date March 23-26, 2011

Venue Addis Ababa Stadium

Event	Sex	Name of Athlete	Club	Mark	Position
100meter Hurdle	Women	Tigist Getenet	Mekelakeya	16"30	1
		Konjet Teshome	Fe.Maramya	16"43	2
		Etenesh G/Mekaele	Mekelakeya	16"75	3
400m Hurdles	Women	Wossene Belaye	Fe.Maramya	1:00.46	1
		Tigist Getenete	Mekelakeya	1:01.51	2
		Frehiwot Tefer	Mekelakeya	1:04.82	3
110 m Hurdles	Men	Zelalem Chemedessa	Fe.Maramya	15``12	1
		Deberew Tadesse	Mekelakeya	15``82	2
		Wondosson W/Tensaye	Fe.Maramya	16``21	3

400 m	Men	Zelalem Chemedessa	Fe.Maramya	52``45	1
Hurdles		Degefu Dubam	National	52``73	2
		Mezemure H/Maryam	Team	52``78	3
			Or.Police		

CHAPTER THREE

RESERCH DESIGN AND METODOLOGY

This section of the research deals with the research design, data sources, sample and sampling techniques. It also presents the instrument of data collection and methods of data analysis

3.1 THE RESEARCH DESIGN

The main objective of this study was to examine factors that affect hurdle performance. To this effect, descriptive survey method was employed. This method is selected because it is helpful to identify present conditions and point to present needs, immediate status of a phenomenon and facts findings (*Youesh, 2006*). Moreover, it is economical and rapid turnaround in data collection and identifying attribute of a large population from a small group of individuals (Kothari 2004:35). The method was also chosen to answer the question of what is happening now in hurdle performance, what is the status of hurdle performance? Survey method was also used to infer ideas about hurdle performance based on describe the information about the large number of

responses. This method involves collecting data that test the validity of the hypotheses regarding the present status of the subjects of the study. Therefore, the first approach of the data study was to gather data, to examine factors that affect hurdle performance.

3.2 RESEARCH METHOD

In order to attain objectives of the study, valuable information was gathered from different sources. Besides, triangulation of various data gathering tools (observation, questionnaire and unstructured interview) was used to obtain relevant information. Intensive review of related literatures was made to support the study with empirical knowledge in the area.

3.3 SAMPLE AND SAMPLING TECHNIQUES

The sample size of each target population was determined by what *Kothari (2004:58)* suggest, “The ideal sample size of a target population is large to serve as an adequate representative and small enough to be selected economically in terms of both time and complexity of analysis.” In Addis Ababa, there were 6 first division athletics clubs. In this study 4 first division athletics clubs of athletes, their coaches and administrative staffs were included. The selection of 4 clubs of athletes (12 male and 19 female), 4 coaches (3 male and 1 female) and 4 administrative staffs (both male) was conducted using comprehensive sampling technique.

3.4 INSTRUMENTS OF DATA COLLECTION

In order to collect the data necessary for analysis, the researcher used observation, questionnaire and unstructured interview. Triangulation, a multi-method approach is 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 instruments is discussed as follows:

Observation

In order to obtain information about availability of facilities and equipments, principles of training and style of coaching applied by the coaches, observation has been used by the

researcher. Kumar (1999) pointed out “observation is one way of collecting primary data since purposeful, systematically planned recorded, is subjected to be checked, and it controls, the validity and reliability of what to be observation” the main advantage of this method lies on elimination of bias.

Questionnaire

Questionnaires were also used to collect relevant information from athletes and coaches. Open and close-ended questions will be used. *According to (Koul,L, 2005)* The method of data collection through questioner is quite popular particularly in case of big enquires. It is being adopted by private individuals, research workers, and private public organizations and even by governments.

Interview

Interview guide has been prepared and conducted in order to gained information about availability of facilities and equipments, qualification level of the coaches, and number of athletes Information related with criteria of selection of athletes, talent identification of athletes and like.

3.5 PROCEDURES OF DATA COLLECTION

After designing the research instruments (observation checklist, questionnaire and interview) the research sites and sample size of participants were identified. Then, observation of the training session took the first step in data collection. This is because to gained first hand information the usual principles, method and character of the athletes and the coach during the training session. Secondly, date and times of contact were determined and questionnaires were distributed to selected athletes and their coaches. The interview session followed with coaches and athletes. After completing the data collection, processing the raw data or analysis follow suit.

3.6 METHODS OF DATA ANALYSIS

This study used both qualitative and quantitative research approach. Therefore, the data obtained through questionnaire was analyzed quantitatively. For quantitative analysis percentage and number were employed. The data collected through interview and observations were analyzed qualitatively to substantiate the quantitative analysis. The collected data was sorted out,

organized and synthesized so that meaningful results of the study was obtained and conclusions was also been made based on the interpreted data. Thus, the information obtained through close-ended questions was tallied and put in to numbers (percentages) .This helps the researcher to use tables for interpretations. Then cross-check was made through information which was collected with observation in order to triangulate the data collected through the questionnaire and interview.

Finally, the report was organized and written by using verbal descriptions supported by percentages or numbers of the respondents from the tables, provided for a particular items or question.

Table 4: Research Settings and Participants of the Study

No	Involved groups	Research instruments used	Respondents		
			Male	Female	Total
1	Hurdle athletes in the clubs.	Questionnaire appendix I	12	19	31
		Interview appendix	12	19	31
2	Coaches of the Club.	Questionnaire appendix II	3	1	4
		Interview appendix	3	1	4
3	Club administrative staff	Questionnaire appendix III	4	—	4
Ground total			19	20	39

According to table 4 on the above table indicates participants of the study (athletes, coaches and club administrates) to involve in the study.

CHAPTER FOUR

ANALYSES AND INTERPRETATION OF DATA

This part of the study deals with presenting, analyzing and discussing the data collocated through questionnaires, interview and observation from sources. Furthermore, the main findings of the study are presented with the help of Tables followed by descriptive statements for analysis.

4.1 ANALYSIS OF FINDINGS OBTAINED FROM ATHLETES THROUGH QUESTIONNAIRES.

Table 5: Background Information of athletes

No	Item	Alternatives	Athletes	
			No	%
1	Sex	Male	19	62.3
		Female	12	37.7
		Total	31	100
2	Age	Below 18	-	-

		19-22	10	32.3
		23-25	10	32.3
		26-28	7	22.6
		Above 29	4	12.8
		Total	31	100
3	Training age	0 – 2	19	61.3
		3 – 5	12	38.7
		6 – 8	—	—
		Above 9	—	—
		Total	31	100
4	Educational level	Grade 8 complete	19	61.2
		Grade 10 complete	7	22.6
		Grade 12 complete	4	12.9
		Diploma	1	3.2
		Others	—	—
		Total	31	100

According to Table 5, 37.7% of respondents were males and the 62.3% of the respondents were females. Regarding to age of respondents, 32.3% of the athletes were found in the age of between 19 - 22 and 23-25 years old respectively, 22.6% of the athletes were found in the age between 26-28 years old and the rest 12.8% of them were found above 29 years old. And concerned to training age 61.3% of the athletes were found in the training age between 0-2 years and 38.7% of the athletes were found in the training age between 3-5 years. This indicates that no one elite athlete.

According to (Korchemny, 1996 and Stepanov, 1989) the development of elite hurdlers requires approximately six to eight years of specialized training and an additional four years of general physical conditioning to reach top performance. Fifty per cent of the world's best 400m hurdlers are over 27 years old and average age of the female world class 100m hurdler is between 24-30 years of age.

With regard to their educational level, out of the total 31 athletes, 62.3%, 22.6%, 12.8% and 3.2% were of grade 8, 10, 12 and diploma complete respectively. Hence, most of them are found in grade 8 complete.

Table 6: Responses of Athlete's for hurdle race interest.

No	Item	Alternatives	Athletes	
			No	%
1	You become a hurdler with your interest?	A. yes	7	22.6
		B. No	24	77.4
		Total	31	100
2	If No for question No 1 Who insists you to join the club of hurdle race?	A, Coach	20	64.5
		B, Parent	—	—
		C, Peer group	4	12.9
		D, The love of the race	—	—
		E, Media	—	—
		F, If any anther specify	—	—
		Total	24	77.4
3	From where you join this club to run hurdle?	A .Schools	4	12.9
		B, While running privately	3	9.7
		C, sport projects	8	25.8
		D, Clubs	16	51,6
		Total	31	100

According to Table 6, 22.6% of respondents was response to be a hurdler by their interest, the rest 77.4% respondents was response not to be a hurdler by their interest. And 64.5% (77.4%) of the respondents was to become a hurdler by the push of their coaches, but the rest 12.9% (77.4%) of the respondents was to become a hurdler by the push of their peer group. Regarding to the respondent 12.9%, 9.7%, 25.8% and 51.6% were joined the club from school, private running, sport project and other clubs respectively.

Table 7: Athlete's responses on information about talent scouting

No	Item	Alternatives	Athletes	
			No	%
4	Do you have a piece of information about talent scouting process and selection criteria?	A .Yes	4	12.4
		B. No	27	87.6
		Total	31	100
5	If 'yes' for question No 4; have you been identified as a "Talented" athlete?	A .Yes	4	12.4
		B. No	—	—
		Total	4	12.4

6	If your answer is no for question No 4, by what means the coach select you?	A. I 'am sprinter	21	68.1
		B. I 'am jumper	6	19.5
		C. I 'am soccer	—	—
		Total	27	87.6

As indicated in item 4 of table 7, 87.6% of the respondent's athlete replied that they have not information about talent scouting process and selection criteria. Whereas 12.4% of the respondents responded have information about talent scouting process and selection criteria of an athlete. This show as the athletes doesn't know how the athletes incorporate to the club. Regarding to item 5 of Table 7, 12.4% of (12.4%) the respondents of athletes said that there are talented athletes. And item 6 indicated 68.1% of (87.6%) and 19.5% (87.6%) of the respondents said that the coach selected using as sprinter and jumper respectively. This shows that most of them selected without scientific talented selection criteria.

Identifying Potential Long Hurdlers: Identifying athletes who may have the potential for success in the 400/ 300 Hurdles begins with examining the physical attributes of athletes to see if they have the Bio-Motor factors required for success in the long hurdle races. The long hurdle races require much more than Speed Endurance and modest hurdling skill. Ralph Lindeman (1995)

Table 8: Athletes responses on information about their coaching style

No	Item	Alternatives	Athletes	
			No	%
7	Are you interested the coaching style of your coach?	A. Yes	12	38.7
		B. No	19	61.3
		Total	31	100
8	Does your coach motivate you to keep on training and improve your performances?	A. Yes	6	19.4
		B. No	18	58.0
		C. Some times	7	22.6
		Total	31	100
9	Does your coach use mental skill training?	A. Yes	3	9.7
		B. No	28	90.3
		Total	31	100

As indicated in item 7 of table 8, 38.7% of athletes responded that there are interested to the coaching style of the coach but the rest of 61.3% of athletes responded that there are not interested to the coaching style of the coach. Regarding to item 8 of table 8, motivation of the coach to athletes during training 19.4% athletes said that the coach motivates them, 58.0% of the respondent says that never to motivate them and 22.6% of the respondent says that the coach motivates them sometimes. This indicates that the coach does not highly motivate their athletes. As indicated in item 9 of table 8, 9.7% of the respondent responses the coach gives mental skill training while 90.3% of the respondent responses the coach does not give mental skill training. This shows that the coach does not give explanation about the event.

MACKENZIE, B. (2005) stated that ".I also believes the role of the sports coach is to create the right conditions for learning to happen and to find ways of motivating the athletes. Most athletes are highly motivated and therefore the task is to maintain that motivation and to generate excitement and enthusiasm. The role of the coach could be quite daunting since the above implies what could be construed as quite some responsibility, especially for the part-time non-professional.

When an athlete first starts in a sport/event (cognitive stage) the coach's role is to direct the athlete in all aspects of training (telling or showing coaching style).

As the athlete develops and demonstrates a sound technical understanding (associative stage) of the sport/event then gradually the coach's role changes to one where the coach and athlete discuss and agree appropriate training requirements (involving coaching style).

As the athlete matures and demonstrates a sound understanding of training principals (Autonomous stage) then the athlete will determine the training requirements. The coach's role becomes one of a mentor providing advice and support as and when required.

Table9: Athletes responses on motivation of themselves.

No	Item	Alternatives	Athletes	
			No	%
10	Do you motivate yourself to improve your skill?	A. Yes	7	22.6
		B. No	24	77.4
		Total	31	100

As indicated in item 10 of table 9, 22.6% of athletes responded that there are motivate themselves to improve their skill but the rest of 77.4% of athletes responded that there are not motivate them to improve their skill. This shows that most of them were not interested to the event.

Table 10: Responses of Athletes on Training.

No	Item	Alternatives	Athletes	
			No	%
11	Do you have standardized training area?	A. Yes	1	3.2
		B. No	30	96.8
		Total	31	100
12	How do you gate the training methods of your coach from the point of your age level?	A. Excellent	—	—
		B. Very good	3	9.7
		C .Good	5	16.1
		D. Poor	23	74.2
		Total	31	100
13	Do you think your daily training improve your performance?	A. Yes	—	—
		B. No	31	100
		Total	31	100
14	How many times do your coaches give feedback during training session?	Always	—	—
		Sometimes	5	16.1
		Never	26	83.9
		Total	31	100

Regarding to item 11 of table 10, 3.2% of the athlete responded the training track is standardized but the rest 96.8% of the athlete responded the training track is not standardized. This shows that the training area of the club is very poor and had no its own standardized training track. As indicate item 12 of table 10 9.7% of the respondent responses the training methodology of the coach related to age is very good, 16.1% of the respondent responses the training methodology of the coach related to age is good and 74.2%% of the respondent responses the training methodology of the coach related to age is poor. The above statement stated that the methodology of the coach related to athlete's age is very low.

According to MACKENZIE, B. (2004) Training is a systematic process with the objective of improving an athlete's fitness in a selected activity. And it is a long term process that is progressive and recognizes the individual athlete's needs and capability. To improve skill and performance, athletes, led by the coach, must meet the training objectives. On the other hand

100% of the respondent responses the daily training program does not improve their performance.

Training is a systematic process with the objective of improving an athlete's fitness in a selected activity. A long-term process is progressive and recognizes the individual athlete's needs and capabilities. To improve skill and performance, athletes, led by the coach, must meet the training objectives. Training programmers' use exercise or practice to develop the qualities required for an event. The process of training can be planned because training follows certain principles. These principles of training need to be fully understood before the coach can produce effective long-term programmers'. The three most important of these principles are: Law of Overload, Law of Reversibility and Law of Specificity (IAAF "Introduction to Coaching Theory")

As indicate item 14 of table 10, 16.1% of the respondent responses the coach gives feedback sometimes the rest 83.9% of the respondent responses the coach never give feedback. This indicated that there were problem of giving feedback by the coach.

In providing feedback encourage the athlete to self analyze by asking appropriate open questions, provide specific and simple advice, limit the advice to 1 or 2 points, check they understand what they will do next and make the whole process a positive experience for the athlete. MACKENZIE, B. (2005)

Table 11: Athletes responses on club support and benefit

No 15	Item	Alternatives										Total	
		Very poor		Poor		Good		Very good		Excellent			
		No	%	No	%	No	%	No	%	No	%	No.	%
A	Food and sport drinks	—	—	—	—	11	35.5	12	38.7	8	25.8	31	100
B	Pocket money	—	—	31	100	—	—	—	—	—	—	31	100
C	Medication	—	—	13	41.9	18	58.1	—	—	—	—	31	100
D	Sport wear	—	—	16	51.6	15	48.4	—	—	—	—	31	100
E	Psychological support	—	—	31	100	—	—	—	—	—	—	31	100

F	Reward	–	–	31	100	–	–	–	–	–	–	31	100
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According to Table 11, 35.5%, 38.7% and 25.8% of the respondents responded on food and soft drink as good, very good and excellent respectively. Regarding to pocket money 100% of them responded as poor. Concerning medication 41.9% and 58.1% of the respondents responded as poor and good respectively. On sport wear 51.6% and 48.4% of the respondents responded as poor and good respectively. These shows there were a shortage of sport wears. All respondents on psychological support and reward responded as poor. This indicates that there was no any reward that is given for the athletes.

Table 12: athlete's responses on communication

No 16	Item	Alternatives										Total	
		Very poor		Poor		Good		Very good		Excellent			
		No	%	No	%	No	%	No	%	No	%	No	%
A	Communication with coach	—	—	9	29.0	22	71.0	—	—	—	—	31	100
B	Communication with peer	—	—	—	—	26	83.9	5	16.1	—	—	31	100
C	Communication with administrator	31	100	—	—	—	—	—	—	—	—	31	100

As indicate table 12, 29% and 71% of the respondents responded on communication with coach as poor and good respectively. On the other hand 83.9% and 16.1% of the respondents responded on communication with peer as good and very good respectively and all athletes responded on communication with administration as very poor. This shows that there were agape between athletes and administrative body.

Table 13: Athletes responses on Opportunity of Computation

No	Item	Alternatives	Athletes	
			No	%
17	Have you ever got the opportunities to compete at different level?	A. Yes	3	9.7
		B. No	10	32.3
		C. Some times	18	58.0

As shown in item 17 of table 13, (58%) of athletes responded that they have got sometimes the opportunities to compete at different levels of competition, and the rest 9.7% and 32.3% of them responded that they have got the opportunity to participate in deferent levels of computation and no opportunity to participate in deferent levels of computation respectively.

4.2. ANALYSIS OF FINDINGS OBTAINED FROM COACHES THROUGH QUESTIONNAIRES.

Table 14: Background Information of Coaches

No	Item	Alternatives	Coaches	
			No	%
1	Sex	Male	3	75
		Female	1	25
		Total	4	100
2	Age	Below 25	—	—
		26-30	1	25
		31-40	2	50
		41-50	1	25
		Above 51	—	—
		Total	4	100
3	Marital status	Single	—	—
		Married	4	100
		Divorced	—	—
		Widowed	—	—
		Total	4	100
4	Educational background	10 complete	—	—
		12 complete	1	25
		Certificate in sport	—	—
		Diploma in physical education	2	50
		B.sc in physical education	1	25
		M.sc in athletics	—	—
		Others	—	—
		Total	4	100
5	Coaching experience	One –two years	—	—
		Three –five years	1	25
		Six –ten years	2	50
		Above ten years	1	25
		Total	4	100

As shown in Table 14, majorities (75%) of coaches in the clubs were males and only 25% of them were female. Regarding to the age of the respondents 25% of the coaches were found in between the age of 26-30 years and 50% of the coaches were found in between the age of 31-40

years old. The rest 25% were found in between the age of 41-50 years old. According to their marital status 100% of the coaches were married. Concerning their qualification, 25% of the coaches were 12 complete; while 50% of them were diploma holders and 25% of the respondent coaches were B.sc in physical education. In the case of experience of respondents, the majority 50% of them have in between the 6-10 years experience, 25% of the coaches have in between the 3-6 service years and 25% of the coaches have above 10 service years. In general, more than half of the respondent coaches have above six years of experience. Thus, it was assumed that they have helpful experience for this study.

Table 15: Coaches response on attitude

No	Item	Alternatives	Coaches	
			No	%
1	What inspire you to become a coach of athletics?	A. concern of nationality	—	—
		B employability	4	100
		C. Affection to athletics sport	—	—
		D media	—	—
		If any anther, specify	—	—
		Total	4	100

As indicated in item table 15, 100% of the respondent responses to become a coach of athletics a means of employment.

Table 16: Coaches responses concerning taking of short term course

No	Item	Alternatives	Coaches	
			No	%
2	Have you taken any short term course in coaching athletics?	A .yes	4	100
		B. No	—	—
		Total	4	100
3	If 'yes' for question No 2 Is the course you attended relevant for coaching athletics?	A .yes	4	100
		B. No	—	—
		Total	4	100

As indicated in item 2 table 16, 100% of the respondent responses they take short term course in coaching athletics. And 100% of the respondent responses the courses they attend were relevant for coaching athletics. The above statement indicates the coach upgrading their coaching ability.

Table 17: Coaches responses on talent scouting process

No	Item	Alternatives	Coaches	
			No	%
4	As a coach, do you follow talent scouting procedure in selection of athletes?	A .yes	4	100
		B. No	—	—
		Total	4	100
5	If your answer for question number 4 is “yes” what is your selection criterion?	A. Athletes current Performance	2	50
		B. Body type of the athletes’	—	—
		C. Athletes’ interest	1	25
		D. All of the above	1	25
		If any other specify,	—	—
		Total	4	100

As indicated in item 4 table 17, 100% of the respondent responses they follow talent scouting procedure in selection of athletes. But depending on selection criteria 50% of the respondent responses to select athletes by current performance, 25% of the respondent responses to select athletes by interest of the athlete and the rest 25% of the respondent responses to select athletes by body type, interest of the athletes and athletes current performance. This shows that there were no common athlete’s selection criteria.

Table 18: Coaches responses on annual plane

No	Item	Alternatives	Coaches	
			No	%
6	. Do you have weekly, monthly and yearly training plan?	A .yes	4	100
		B. No	–	–
		Total	4	100
7	Do you have coaching manual which is provided from the concerned body?	A .yes	2	50
		B. No	2	50
		Total	4	100
8	On the basis of your experience do you use appropriate age related coaching system?	A .Strongly agree	1	25
		B. Agree	3	75
		C. Disagree	–	–
		D. Strongly disagree	–	–
		Total	4	100

As indicate in item 6 of table18, all respondents responses they have weekly monthly and yearly training plan. According to coaching manual 50% of respondents responses they have coaching manual provide from concerned body but the rest 50% of respondent's responses they have no coaching manual. Concerning to uses appropriate age related coaching system 25% of respondent's responses strongly agree but 75% of respondent's responses agree. This indicates that most coaches use appropriate age related coaching system.

Table 19: Responses on Principles of Training during Practice

No	Item	Alternatives	Coaches	
			No	%
9	How many training days do you have per week?	A. One days	—	—
		B. Two days	—	—
		C. Three days	3	75
		D. Four days	1	25
		E. Five days	—	—
		Total	4	100
10	How long is each training session?	A. One hour	—	—
		B. Two hour	2	50
		C. Three hour	1	25
		D. Four hour	—	—
		E. It depends on the content	1	25
		Total	4	100
11	Do you incorporate the components of training during practice?	A .yes	4	100
		B. No	—	—
		Total	4	100

As shown in item 9 of table 19, the majority (75%) of the coaches train their athletes three days per week. The rest 25% of the coach train their athletes four days per week. This indicates the recovery periods were more than training period. Concerning of duration of session 50%, 25% and 25% of the coach responses three hours, four hours and it depends on the content. And 100% Of the coach responses the content of training during practice was incorporate.

Training is a systematic process with the objective of improving an athlete's fitness in a selected activity. A long-term process is progressive and recognizes the individual athlete's needs and capabilities. To improve skill and performance, athletes, led by the coach, must meet the training objectives. Training programmers' use exercise or practice to develop the qualities required for an event. The process of training can be planned because training follows certain principles. These principles of training need to be fully understood before the coach can produce effective

long-term programmers'. The three most important of these principles are: Law of Overload, Law of Reversibility and Law of Specificity (IAAF "Introduction to Coaching Theory")

Table 20: Responses for incentives of coach

No	Item	Alternatives	Coaches	
			No	%
12	Does the coaching fee motivate you to do all your best?	A .yes	—	—
		B. No	4	100
		Total	4	100

Table 20, indicates that all coaches does not satisfactory with their salary. This shows the payment of the coach was very low and the coach does not motivate.

Table 21: Responses of the coach for assessment of athlete's performance

No	Item	Alternatives	Coaches	
			No	%
13	Do you continuously assess the performance of your athlete?	A .yes	3	75
		B. No	—	—
		C. Some times	1	25
		Total	4	100

As indicate item 13 table 21, 75% of the respondent responses they were assess athletes' performance continuously. But the rest 25% of the respondent responses they were sometimes asses athletes performance.

Table 22: Respondents responses on material and equipment

No	Item	Alternatives	Coaches	
			No	%
14	Do you agree that the training track is convenient to conduct the training program?	A. Strongly agree	—	—
		B. Agree	—	—
		C. Disagree	2	50
		D. Strongly disagree	2	50
		Total	4	100
15	How do you rate the quality of training materials?	A. Very high	—	—
		B. High	—	—
		C. Low	—	—
		D. Very low	4	100
		Total	4	100

Table 22, item 14 shows that 50%, 50% of the respondent responses disagree and strongly disagree on the training track was convenient to the training program respectively. And 100% Of the respondent responses the quality of the hurdle material were very low. These shows that the quality of hurdle material was poor and the training track were not safe for training.

4.3 ANALYSIS OF FINDINGS OBTAINED FROM ADMINISTRATIVE STAFF THROUGH QUESTIONNAIRES.

Table 23: Background Information of Administrative staff

No	Item	Alternatives	Administrative staff	
			No	%
1	Sex	Male	4	100
		Female	—	—
		Total	4	1
2	Age	Below 25	—	—
		26-30	1	25
		31-40	2	50
		41-50	1	25
		Above 51	—	—
		Total	4	100
3	Marital status	Single	—	—
		Married	4	100
		Divorced	—	—
		Widowed	—	—
		Total	4	100
4	Educational background	10 complete	—	—
		12 complete	—	—
		Certificate in sport	—	—
		Diploma in physical education	—	—
		B.sc in physical education	3	75
		M.sc in athletics	1	25
		Others	—	—
		Total	4	100

As shown in Table, 23, all (100%) of Administrative staff in the clubs was males. Regarding to the age of the respondents 25% of the Administrative staff were found in between the age of 26-30 years and 50% of the Administrative staff were found in between the age of 31-40 years old.

The rest 25% were found in between the age of 41-50 years old. According to their marital status 100% of the Administrative staff was married.

Concerning their qualification, 75% of the expert was B .sc in physical education while 25% of them were M.sc in athletics.

Table 24: Administrative staff response about support

No	Item	Alternatives	Administrative staff	
			No	%
1	Type of support from the club	A, Facilities and equipment	—	—
		B, Provide pocket money for athletes and coaches	—	—
		C, Financial support	—	—
		D, Technical support	—	—
		E, I use all of them	4	100
		Total	4	100
2	Do you think that the support you provide sufficient?	A, Yes	1	25
		B, No	3	75
		Total	4	100

As indicate table 24, 100% of the respondent responses to support the club by providing pocket money for athletes and coaches, facility and equipment, financial and technical support. Concerning sufficiency of the supporting 25% of the respondent responses the supporting was sufficient. But the rest 75% of the respondent responses the supporting was not sufficient. The above statement indicates that the quality and quantity of the material providing pocket money for athletes and coaches financial and technical support was not sufficient.

Table 25: Administrative staff information about supervise the athlete.

No	Item	Alternatives	Administrative staff	
			No	%
3	How many times you supervise the athletes to know their level of performance?	A, One times per month	—	—
		B, Two times per six month	2	50
		C, Two times per a year	2	50
		D, No supervision	—	—
		E. If any other specify	—	—
		Total	4	100
4	Do you set scheduled meeting program with sport commission, sport experts, and journalists to evaluate the present level of athletes?	A, Yes	1	25
		B. No	3	75
		Total	4	100

As indicate item 3 table 25, 50% of the respondent responses supervise the athlete and to know their level of performance two times per six month and two times per year. Regarding to meeting schedule 25% of the respondent responses they have. But the rest 75% of the respondent responses they have not. These shows that most club Administrative staff have no meeting schedule and discussion program.

Table 26: Administrative staff information about facilitating course for coach

No	Item	Alternatives	Administrative staff	
			No	%
5	Do you agree that monthly payment for the coach is sufficient?	A, Strongly agree	—	—
		B, Agree	1	25
		C. disagree	3	75
		D. Strongly Disagree	—	—
		Total	4	100
6	Does the club facilitate upgrading course for the coach?	A, Yes	4	100
		B. No	—	—
		Total	4	100

As indicate item 5 table 26, 25% of the respondent responses the monthly payment of the coach was sufficient. The rest 75% of the respondent responses the monthly payment of the coach was not sufficient. This indicates that coach payment was less. Regarding to facilitating upgrading course for coach 100% of the respondent responses to facilitate upgrade course for coaches.

Table 27: Administrative staff information about selection procedure for coach

No	Item	Alternatives	Administrative staff	
			No	%
7	Do you have any formal selection procedure adopted for coaches?	A, Yes	4	100
		B. No	—	—
		Total	4	100

The above table indicates that all clubs have formal coach selection procedure.

Table 28: Administrative staff information about factors that affect hurdle performance

No	Item	Alternatives	Administrative staff	
			No	%
8	What are the major factors that affect hurdle performance?	A, Lack of good communication	—	—
		B, Low attention given to the event	—	—
		C, Lack of joints support	—	—
		D, lack of qualified coach	—	—
		E. all are factor	4	100
		Total	4	100

As item 8 table 28,100% of the respondent responses the major factors that affect hurdle performance were lack of good communication, low attention given to the event, lack of joints support and lack of qualified coach.

4.4 ANALYSIS OF OPEN ENDED QUESTIONS

1. What are the factors that affect hurdle race performance?
2. What are the possible solutions that you mention on the above factors?

Athletes, Coaches and club administrative staff Responses to the Open-ended Questions

In response to the open-ended question which required athletes, coaches and club expert's with regard to the factors that affect hurdle race performance, they suggested the following factor and their solutions. The open ended questions focused on:

1. What are the main factors that affect hurdle race performance?
 - The quality and quantity of training track.
 - interest of the trainer and coaches
 - Lack of qualified coaches.
 - Lack of scientific training methods.
 - Less attention given for the event.
 - Injuries in relation to training.
2. What should be done to improve hurdle performance?

Responding these question athletes, coaches and clubs experts suggested the following solutions:

- ❖ Hard working
- ❖ Promoting clubs
- ❖ Promoting projects
- ❖ Promoting athletic training program
- ❖ Use scientific methodology of training.
- ❖ Assign one professional coach for each event.
- ❖ Give attention to the event.
- ❖ Full fill standardized track, quality and quantity of the material (hurdle).

4.5 ANALYSIS OF FINDINGS OBTAINED THROUGH INTERVIEW

Interview Report Obtained From Athletes and Coaches

The researcher conducted unstructured interview in face to face manner with athletes and coaches place in order to get additional information about factors affect hurdle performance. Thus, the responses from the subjects summarized and presented in the following way.

The idea of monthly payment of the coaches and interests of the athlete's:

Responses to the above issues were identical as a strong majority of coaches and club experts reported a monthly payment of the coaches has a negative effect of athletic coaching for achievement as well as athletes attitude toward the coaches has its own negative impact. The majority of athletes are not willing to do by the coaches. This implies us the attitude of the athletes to do by the systems that are designed by the coach is not attracted. None of the coaches argued by the above idea, the reason behind it is the quality of hurdle material, facilities and training track. The other faced problems and challenges were injury happened when training, fear of clearance of the hurdle, training system of the coach, absence of reward after competition and less attention give for the event.

In general, the interview result shows, less attention give for the event, attitude of the athletes and the coaches were very low, injury, fear, absence of reward, fee of the coach and athletes, quality of the track, hurdle material and facility were the main factors that affect hurdle performance.

4.6 ANALYSIS AND INTERPRETATION OF OBSERVATION OF TRAINING

Table 29: Observation of training in Hurdle race

Observation checklist Date May 8, 15and22/2004 E.C

No	Items	v.good	good	Satisfactory	Unsatisfactory
1	The atmosphere of the practice sessions.			✓	
2	The mutual respect between coach and trainer.				✓
3	The coach demonstrates a sound knowledge of his or her sport				✓
4	All material is presented in a clear and precise manner.				✓
5	Before or after practice, there is opportunity for exchange of ideas between trainer and coach				✓
6	The coach attends every practice				✓
7	The coach uses principle of training (simple to complex).				✓
8	Practice sessions are well organized and demanding both physically and mentally.			✓	
9	The coach provides adequate explanation of the session				✓
10	The coach treats each athlete as an individual				✓
11	The coach sets clear rules and conducts expectations and is consistent in enforcing them			✓	
12	The coach motivates his/her athlete.				✓
13	Athletes follow coach's explanation			✓	
14	Athletes train intensively			✓	
15	Athletes train interestedly			✓	
16	Athletes are dressed properly.				

As it was mentioned in the methodology section, practical training observation was conducted for 3 days. The observation checklist involved more of the coaches' duty and Voluntariness of athletes to the coach Methodology of training, application of principles of training, application of

psychological training, application of age related training. However, as indicated in Table 30, some athletes were not obedient for their coaches. Generally The mutual respect between coach and trainer, the coach demonstrates a sound knowledge of his or her sport, all material is presented in a clear and precise manner, before or after practice, there is opportunity for exchange of ideas between trainer and coach, the coach attends every practice, the coach uses principle of training (simple to complex), the coach provides adequate explanation of the session, the coach treats each athlete as an individual and the coach motivates his/her athlete were unsatisfactory. The atmosphere of the practice sessions, practice sessions are well organized and demanding both physically and mentally, the coach sets clear rules and conducts expectations and is consistent in enforcing them, athletes follow coach's explanation, training intensively and training interestedly were satisfactory. But Athletes dressed properly was good.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This is the final part of the thesis which deals with the major findings, the conclusion reached at and the recommendations forwarded based on the finding

5.1 SUMMARY

The major purposes of this study were to find out Factors affecting hurdle race performance of some selected first division athletics clubs Addis Ababa, Ethiopia. This study used both qualitative and quantitative research approach. Therefore, the data obtained through questionnaire was analyzed quantitatively by percentage and the data collected through interview and observations were analyzed qualitatively to substantiate the quantitative analysis.

From the data analysis, the major findings obtained are summarized as follows

- ❖ There is less communication between athletes and coaches. Because athletes attitude towards the coach was very low.
- ❖ The support that the clubs were inadequate.
- ❖ From the finding the major problems of hurdle race were lack of scientific method of training and ignorant to the methodology of coaching, As well as the quality and quantity of training track, Lack of qualified coaches, Injuries in relation to training and lack of psychological skill training.
- ❖ The interest of the athletes and the coaches were very low, motivation of the athletes themselves and coaches to motivate the athletes were less.
- ❖ Total benefits (food and drink, pocket money, sport wear, reward and monthly payment) of the athletes as well as coaches were unsatisfactory.

5.2 CONCLUSION

In the light of the major findings those indicated above, the following conclusions are drawn.

The athletes are the immediate centers of the training program. Therefore, the interest of athlete is a key factor for success in athletics

Coaching is a craft that is best learned practical experience; develop effective relationships with athletes and coaching colleagues, and through application of knowledge, Theory and

methodology of training is a vast area. Closely observing the information available from each science will make coaches more proficient in their training endeavors.

The principles of training are the foundation of this complex process knowing the training factors will clarify the role each factor plays in training.

In athletics, records are made to be broken continually due to improved performance of the athletes. These improvements in performance are generally a result of higher level of fitness. This fitness comes from an improved understanding by the coaches and athletes of training and its effects. There is a gap between the athletes and coaches. Because athletes attitude towards the coach was very low, the support that the clubs were inadequate, from the finding the major problems of hurdle race were lack of scientific method of training and ignorant to the methodology of coaching, As well as the quality and quantity of training track, Lack of qualified coaches, Injuries in relation to training and lack of psychological skill training, the interest of the athletes and the coaches were very low, motivation of the athletes themselves and coaches to motivate the athletes were less and total benefits (food and drink, pocket money, sport wear, reward and monthly payment) of the athletes as well as coaches were unsatisfactory.

5.3 RECOMMENDATION

- Creating a training system for a sport may stem from the general knowledge in the theory and methodology of training, scientific findings, the experience of the best coaches, and the approach used in other clubs.
- Each individual has a place within the system, and a coach may attempt to enrich the system through his or her talents.
- By developing research, especially applied research, could enrich training knowledge how improve methods of athlete evaluation, selection, peaking, recovery and regeneration following training; and increase knowledge of how to cope with stress and how to get the successor hurdle athlete.
- All the concerned bodies should be creating wining sprites as like as the past. Ethiopian athletes made the Ethiopian flag and the Ethiopian national anthem synonymous with any international athletic victory including world and Olympic athletic competitions. Ethiopia stands at the top of the world by as much as possible in all discipline.
- Be develop and modernized the quality and quantity of the hurdle.

- To be developed the attitude of the coaches and athletes to the hurdle event.
- Working to increase the interest of the hurdle event both of the coaches and athletes by using incentives and rewards.
- Preparing upgrading courses for the coaches and encourage the coaches to scientific training method.
- The athletics federation should promote clubs to work hurdle event widely.
- The concerned body should work hard.
- The concerned body to fulfill as much as possible economical problems.

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Appendix 1

Addis Ababa University School of Graduate Studies

Faculty of Science Department of Sport Science

Written questionnaire prepared to be filled by the athletes

Dear athletes, the purpose of this questionnaire is to collect information about factor that affect hurdle performance of some selected Addis Ababa first division athletics club and to suggest affirmative solution and possible recommendation based on the findings. To get essential information, your honest and sincere cooperation in responding to each question is very important to meet the intended objective.

General direction

1. You do not need to write your name
2. Individual data will be kept confidential

Thank you for your heart felt cooperation in advance

Instruction

1. Fill in the given box by putting a symbol of right “√”
2. Choose the appropriate of your option from the given alternatives and circle if
3. For open ended questions, write brief and short answers

General profiles of the trainees

1. Sex Male ☐ Female ☐
2. Age below 18 years ☐ 19 -22 years ☐ 23 - 25 years ☐
 ☐ 26 – 28 years above 29 years ☐
3. Training age 0 – 2 years ☐ 3 – 5 years ☐ 6 – 8 years ☐
 Above 9 years ☐
4. Educational level
 Grade 8 complete ☐

Grad 10 complete ☐

Grad 12 complete ☐

Diploma

If any other, specify _____

1. You become a hurdler with your interest?

A. yes

B. No

2. If No for question No 1 Who insists you to join the club of hurdle race?

A. Coach

B. Parent

C. Peer group

D. love of the game

E. Media

If any other specify, _____

3. From where you join this club to run hurdle?

A. Schools

B. While running private

C sport projects

D. Clubs

4. Do you have a piece of information about talent scouting process and selection criteria?

A. Yes

B. No

5. If 'yes' for question 4; have you been identified as a "Talented" athlete?

A. Yes

B. No

6. If your answer is no for question no 4, by what means the coach select you?

A. I 'am sprinter

B. I 'am jumper

C. I 'am soccer

7. Are you interested the coaching style of your coach?

A. Yes

B, No

8. Does your coach motivate you to keep on training and improve your performances?

A. Yes

B. Some times

C. No

9. Does your coach use mental skill training?

A. yes

B. No

10. Do you motivate yourself to improve your skill?

A. yes

B. No

11. Do you have standardized training area?

A. yes

B. No

12. How do you gate the training methods of your coach from the point of your age level?

A. Excellent

B. Very good

C. Good

D. Poor

13. Do you think your daily training improve your performance?

A. yes

B. No

14. How many times do your coaches give feedback during training session?

A. Always

B. Sometimes

C. Never

15. Put the (√) mark on the given alternatives

No	Item	Alternatives				
		Very poor	Poor	Good	Very good	Excellent
A	Food and sport drinks					
B	Pocket money					
C	Medication					
D	Sport wear					
E	Psychological support					
F	Reward					
16						
G	Communication with coach					
H	Communication with peer					
I	Communication with administrator					

17. Have you ever got the opportunities to compete at different level?

A. Yes B. No C. Sometimes

18. What are the factors that affect hurdle race performance?

19. What are the possible solutions that you mention on the above factors?

Appendix 2

Addis Ababa University School of Graduate Studies

Faculty of Life Science Department of Sport Science

Questioners to be filled by coaches

The main objective of this questionnaire is to collect data from some selected Addis Ababa first division athletics club to dig out the current factor that affect hurdle performance athletics clubs and to set possible solution for enhancement of the training program and to indicate the concerned body to give attention to the club, a piece of information that obtained from you with this questionnaire is important for the success of the study undertaking and for the remedy that will be taken for the improvement of the result of Ethiopian athletics.

I would like to extend my thanks for your cooperation in advance from the bottom of my heart.

General profiles of the coach

- You do not need to write your name
- Individual data will be kept confidential
- Put “√”mark on the box given for your answer
- For open ended questions, give short and precise response

General profiles of the coach

1. Sex Male ☐ female ☐

2. Age below 25years ☐ 26-30 years ☐ 31-40 years ☐

41-50 years ☐ above 51 years ☐

3. Marital status Single ☐ Married ☐ divorced ☐

4. Educational background

10 complete

12 complete

Certificate in sport ☐

Diploma in physical education ☐

B.sc in physical education ☐

M.sc in athletics ☐

If any anther, specify _____

5. Coaching experience

One –two years ☐

Three –five years ☐

Six –ten years ☐

above ten years ☐

1. What inspire you to become a coach of athletics?

A. concern of nationality

B. employability

C. Affection to athletics sport

D. media

If any anther, specify _____

2. Have you taken any short term course in coaching athletics?

A .yes

B. No

3. If ‘yes’ for question No 2 Is the course you attended relevant for coaching athletics?

A .yes

B. No

4. As a coach, do you follow talent scouting procedure in selection of athletes?

A .yes

B. No

5. If your answer for question number 4 is “yes” what is your selection criterion?

A. Athletes current Performance

B. Body type of the athletes’

C. Athletes’ interest

D. All of the above

If any other specify,

6. Do you have weekly, monthly and yearly training plan?
A .yes B. No
7. Do you have coaching manual which is provided from the concerned body?
A .yes B. No
8. On the basis of your experience do you use appropriate age related coaching system?
A .Strongly agree

B. Agree

C. Disagree

D. Strongly disagree
9. How many training days do you have per week?
A. One days B. Two days C. Three days

D. Four days E. Five days
10. How long is each training session?
A. One hour B. Two hour C. Three hour

D. Four hour E. It depends on the content
11. Do you incorporate the components of training during practice?
A .yes B. No
12. Does the coaching fee motivate you to do all your best?
A .yes B. No
13. Do you continuously assess the performance of your athlete?
A .yes B. No C. Some times
14. Do you agree that the training track is convenient to conduct the training program?
A. Strongly agree

B. Agree

C. Disagree

D. strongly disagree

15. How do you rate the quality of training materials?

A. Very high

B. High

C. Low

D. Very low

16. What are the main factors that affect hurdle race performance?

17. What should be done to improve hurdle performance?

Appendix 3

Addis Ababa University School of Graduate Studies

Faculty of Life Science Department of Sport Science

Questionnaire to be by the club Administrative staff

Dear Respondents!

The main objectives of this questionnaire is to gather data from some selected Addis Ababa first division athletics club administrative staff to assess factors that affect hurdle performance and to suggest possible solution for the problems and improvement and to indicate the concerned body to give emphasis to the program. The data collected using this questionnaire is to be used only for academic purpose and all information gathered from the respondents will be helpful to get pertinent findings and to forward timely and sound recommendation. Your responses are confidential and are not used for any other purpose rather than this study. Therefore, in order to obtain relevant and reliable information that would contribute to the success of this study, I kindly request your cooperation to answer all the questions frankly as you fell.

Tank you in advance!

General direction

- You don't need to write your name
- Individual data will be confidential

Instruction

- Put the symbol of right “√” in the box given
- For open ended question, give short and precise response

General profile of club expert

1. Sex – Male ☐ Female ☐
2. Age _____
3. Marital status- single ☐ married ☐ vorced ☐ idowed ☐
4. Educational background
 - A. Certificate
 - B. Diploma
 - C. B.sc

D. No educational background

5. Specify your field of study _____

1. Type of support from the club
 - A. Facilities and equipment
 - B. Provide pocket money for youth
 - C. Financial support
 - D. Technical support
 - E, I use all of them
2. Do you think that the support you provide sufficient?
 - A. Yes
 - B. No
3. How many times you supervise the athletes to know their level of performance?
 - A. One times per month
 - B. Two times per six month
 - C. Two times per a year
 - D. No supervisionIf any other specify _____
4. Do you set scheduled meeting program with sport commission, sport experts, and journalists to evaluate the present level of hurdle athletics?
 - A. Yes
 - B. No
5. Do you agree that monthly payment for the coach is sufficient?
 - A. Strongly agree
 - B. Agree
 - C. disagree
 - D. Strongly Disagree
6. Does the club facilitate upgrading course for the coach?
 - A. Yes
 - B. No
7. Do you have any formal selection procedure adopted for coaches?
 - A. Yes
 - B. No
8. What are the major problems that hinder the development of Addis Ababa hurdling athletics club?
 - A. Lack of good communication
 - B. Low attention given to the projects
 - C. Lack of joints support
 - D. lack of qualified coach
 - E. all are factor
9. What do you suggest to improve the performance of hurdle athletics?

Appendix 4

አዲስ አበባ ዩኒቨርሲቲ ድህረ ምረቃ ትምህርት

እስፖርት ሳይንስ ትምህርት ክፍል

በአትሌቶች የሚሞለ መጠይቅ

የተከበራችሁ አትሌቶች የዚህ መጠይቅ አላማ የሚሆነው በአዲስ አበባ የሚገኙ ጥቂት አትሌትክስ ክለቦች ላይ በመሰናክል ሩጫ ወቅታዊ ችግር ለማወቅ ና ጥናቱን መሠረት በማድረግ ችግራቸውን ለመፍታት የሚያስችሉ መንገዶችን ለማስቀመጥ ነው። ይህ መጠይቅ ከዚህ አላማ ሌላ የማይውል መሆኑን ማሳሰብ እወዳለሁ። በመሆኑም የዚህ መረጃ መገኘት የናንተ ከውስጥ የመነጨ ትብብር ለአላማው መሳካት በጣም ጠቃሚ ነው።

መመሪያ 1

1. በዚህ መጠይቅ ስም መፃፍ አስፈላጊ አይደለም
2. የግል መረጃን ያለምንም ማመንታት መሙላት

ክልብ የመነጨ ምስጋና እያቀረብኩ ወደዋናው መጠየቅ እገባለሁ።

መመሪያ 2

1. በተሰጠው ሳጥን ውስጥ “✓” ምልክት አድርግ/አድርጊ
2. ከተሰጠው አማራጭ ውስጥ አንዱን በመምረጥ አክብብ/አክብቢ
3. ማብራራት ለሚጠይቁ ጥያቄዎች አጭርና ግልፅ መልስ ስጥ/ስጪ

አጠቃላይ ግለ ታሪክ

1. ፆታ ወንድ ☐ ሴት ☐
2. እድሜ _____
3. የስልጠና ቆይታ 0-2 ዓመት ☐ 3-5 ዓመት ☐ 6-8 ዓመት ☐ ከ 9 ዓመት በላይ ☐
4. የትምህርት ደረጃ
 - ሀ. አሥራ ሁለተኛ የጨረሰ/ች
 - ለ. አሥር የጨረሰ/ች

ሐ. ስምንተኛ ክፍል የተማረ

መ. ተጨማሪ ካለ ይግለጹ_____

1. በራስህ/ሽ ፍላጎት ነው የመሰናክ፤ ሩጫ የሆነው/ሽ

ሀ. አዎ

ለ. አይደለም

2. ለተራ ቁጥር አንድ መልስ/ሽ አይደለም ከሆነ ማነው ወደዚህ ክለብ እንድትገቡ/ባ የገፋፋህ

ሀ. አሰልጣኝ

መ. የመሰናክ፤ ሩጫ ፍቅር

ለ. ቤተሰቤ

ሠ. የብዙሃን መገናኛ

ሐ. ጓደኞቼ

ረ. ተጨማሪ ካለ ይግለጹ_____

3. ከየት ነው ይህን ክለብ የተቀላቀልከው/ሽው?

ሀ. ከትምህርት ቤት

ለ. ለግል እሩጫ

ሐ. ከስፖርት ፕሮጀክት

መ. ከሌላ ክለብ

ሠ. ሌላ ካለ ይግለጹ_____

4. ስለተሰጥኦ አመራረጥ መረጃ አለህ/ሽ?

ሀ. አዎን

ለ. አይደለም

5. ለጥያቄ ቁጥር 4 መልስህ/ሽ አዎን ከሆነ አንተ/አነቺ የተመረጥከው/ሽው ልዩ የመሰናክል ሩጫ ተሰጥኦ ስላለህ ነው።

ሀ. አዎን

ለ. አይደለም

6. ለጥያቄ ቁጥር 4 መልስህ/ሽ አይደለም ከሆነ የአንተ/የአንቺ አሰልጣኝ በምን መስፈርት መረጡህ/ሽ?

ሀ. አጭር እርቀት እሯጭ ስለሆነኩ

ለ. ከፍታ ዘላይ ስለሆነኩ

ሐ. እግር ኳስ ተጫዋች ስለሆነኩ

7. በአሰልጣኝህ/ሽ የአሰለጣጠን ዘዴ ደስተኛ ነህ/ሽ?

ሀ. አዎን

ለ. አይደለም

8. አሰልጣኝህ/ሽ በስልጠናህ/ሽ እንደትቆይ እንዲሁም እንደትበረታ/እንደትበረች ያደርጋል?

ሀ. አዎን

ለ. አንዳንዴ

ሐ. አይደለም

9. አሰልጣኝህ/ሽ የአዕምሮ ክህሎት ስልጠና ይሰጣል?

ሀ. አዎን

ለ. አይደለም

ሀ. አዎን ለ. አይደለም

11. ደረጃውን የጠበቀ መለማመጃ ቦታ አላችሁ?

12.የአሰልጣኝነት የማሰልጠኛ ዘዴ አስተዳደር/አስተዳደር ዕድሜ ጋር እንዴት አገናኝው/አገናኝው?

ሀ. እጅግ በጣም ጥሩ	ሐ. ጥሩ
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13.የምትሰራው/ሪው የዕለት ስልጠና ብቃትህን/ሽ ከፍ ያደርጋል ብለህ/ሽ ተስባለህ/ሽ?

ሀ. አዎን	ለ. አይደለም
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ሀ. ሁልጊዜ ለ. አንዳንዴ ሐ. አይሰጥም

ተ.ቁ	መጠይቅ	በጣም አነስተኛ	አነስተኛ	ጥሩ	በጣም ጥሩ	እጅግ በጣም ጥሩ
1	ምግብና መጠጥ					
2	የኪስ ገንዘብ					
3	ህክምና					
4	የስፖርት ትጥቅ					
5	የስነ ልቦና ድጋፍ					
6	ሽልማት					

ተ.ቁ	መጠይቅ	በጣም አነስተኛ	አነስተኛ	ጥሩ	በጣም ጥሩ	እጅግ በጣም ጥሩ
1	ከአሰልጣኝ ጋር ያለው ግንኙነት					
2	ከጓደኛህ ጋር ያለህ ግንኙነት					
3	ከክለቡ አስተዳደሮች ጋር ያለህ ግንኙነት					

17.በተለያዩ የውድድር አይነቶች የመወዳደር ዕድል አግኝተህል/ሽ

ሀ. አዎን

ለ. አንዳንዴ

ሐ. አይደለም

18.አሁን ያለው የመሰናክል ሩጫ ብቃት ማነስ ምክንያቱ ምን ይሆናል ብለህ/ሽ ታስባለህ/ሽ?

19.በክለሶች የመሰናክል ሩጫ ብቃት ለማሳደግ አማራጭ መፍትሄዎች ምንድን ናቸው ብለህ/ሽ ታስባለህ/ሽ?

Appendix 5

Addis Ababa University School of Graduate Studies

Faculty of Natural Science Department of Sport Science

Observation checklist

Date _____

No		v.good	good	Satisfactory	Unsatisfactory
1	The atmosphere of the practice sessions.				
2	The mutual respect between coach and trainer.				
3	The coach demonstrates a sound knowledge of his or her sport				
4	All material is presented in a clear and precise manner.				
5	Before or after practice, there is opportunity for exchange of ideas between trainer and coach				
6	The coach attends every practice				
7	The coach uses principle of training (simple to complex).				
8	Practice sessions are well organized and demanding both physically and mentally.				
9	The coach provides adequate explanation of the session				
10	The coach treats each athlete as an individual				
11	The coach sets clear rules and conducts expectations and is consistent in enforcing them				
12	The coach motivates his/her athlete.				
13	Athletes follow coach's explanation				
14	Athletes train intensively				
15	Athletes train interestedly				
16	Athletes are dressed properly.				

DECLARATION

I declare that this thesis is my original work, and has not been presented for a degree in any university and that all sources of material used for the thesis have been duly acknowledged.

Declared by

confirmed by

Name _____

Name _____

Signature _____

Signature _____

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

Name _____

Signature _____

Date of submission _____