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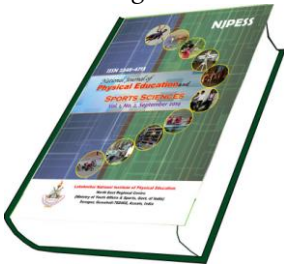
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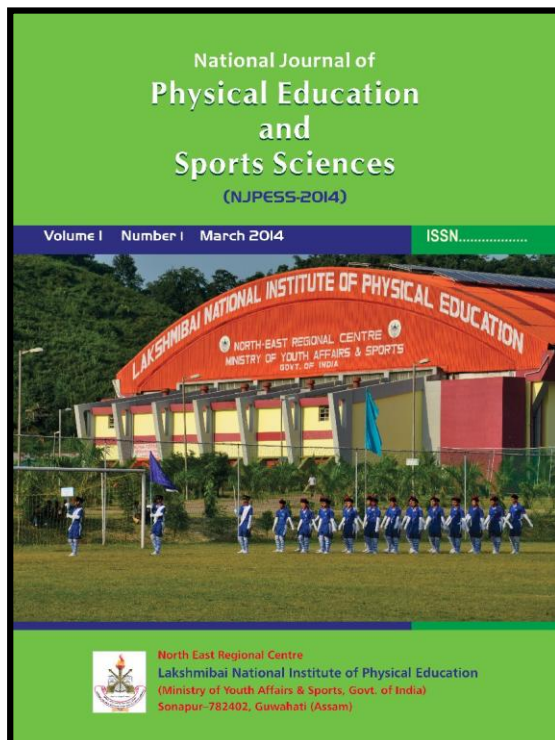
# Editorial

## Epicenter Voyage of a Myth Institute-Lakshmibai National Institute of Physical Education North East Regional Center



Lakshmibai National Institute of Physical Education, NERC is amongst the most admired centers of world-class education to foster academic excellence, physical fitness and research in sports committed to helping scholars, researchers and sports scientist leap into the 21<sup>st</sup> century. The present endeavor is a tribute to the holy symbol of Lakshmibai National Institute of Physical Education, NERC as the same was long precious aspiration. The journal shall symbolically signify the essence of quality research thereby appropriate in the ambition of the institute. The journal shall offer a much desired platform to publish quality research being undertaken in the whole world on the area in question. The journal shall bring the academicians and researchers from all over the globe to share their accumulated experiences and perceptions in order to realize new scientific and original innovation focused on aspects of the sports sciences and sports performance.

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# Analysis of Job Opportunities in the Field of Physical Education and Sports

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## Abstract

The perception of people regarding jobs in the field of physical education and sports the rationales' concerned the apparent shortage of physical education and sports professionals. Physical education as a profession and as a curricular area is undergoing a slow and continual transformation. The nature of today's physical education is one of an orientation toward science and toward a more scientific comprehension of the profession of physical education. Physical education and sports is a continuing area of professional opportunity, new areas of opportunity include: athletic training, occupational therapist, health educator, sports management, sports commentator and broadcasting etc. The scope of physical education has broadened to include an emphasis on intellectual understandings as supplementary and complementary facts of physical skill development. In this paper highlights the jobs in physical education and sports. By becoming thoroughly acquainted with the nature and scope of physical education, the physical educator can better formulate and develop his own intellectual concept of his profession. So conclusively we can say that this concept will be a significant part of his personal relationship with and contribution to the whole of education and physical educations.

**Keywords:** - Jobs, Physical Education and Sports.

## Introduction

Physical Education is an integral part of Education. It is start in the human life from conception of the child in the mother womb. Physical Education is the education which is gained through the physical activities in various conditions and its related responses. Though the Physical Education the all round development of the individuals can be made. In Physical Education most of the situations and conditions is always uncertain and the individuals have to response according to it.

Physical Education now a day is a very important subject but unfortunately in our state even in the country the subject does not get the due importance. Physical education helps to upgrade the sports culture. Without strong physical education

background it is not possible to improve or developed the sports performance.

Physical Education is the most diverse subject. Students have to study all kind of subject right from Philosophy to Information Technology. Each and every subject has the direct impact on the performance of the individuals. Physical Education provides a solid foundation preparing a individual to pursue a variety of careers, from chiropractic to teaching, from recreation leadership to athletic training, and from dance therapy to sports management. Today, Physical Education professionals have a very important role to play in the future of the health of our nation and the world.

### **Jobs through Physical Education**

- 1. Physical Education Teacher in Schools:** - Physical education teacher will teach health education and physical education in the schools. Coaching of different games and sports is also the one duties of physical education teacher in schools. Apart from this they have the responsibility to monitoring of students, lunch, hall, attending faculty and parent-teacher conferences and meeting organizing annual sports etc.
- 2. Assistant Professor, Associate Professor and Professor:** - In the college or universities can be worked as Assistant Professor, Associate Professor and Professor as per qualified to teach physical education in various specialized area of subjects.
- 3. Sports Officer, Director of Physical Education and Sports:** - In the college or universities can be worked as Sports Officer, Director of Physical Education and Sports. They are assigned to look after the various developmental aspects in the field of Physical Education and sports organizing various sports competitions etc.
- 4. Coaches:** - Coaches teach, instruct and organize both amateur and professional athletes for team or individual sports. Athletes are trained for competitive sports with the aim of optimizing their physical potential and for team sports, their ability to made decisions and operate as a team. Coaches also advise on strategies for maximum success, generally with minimum risk of injury. High school sports coaches and almost always also teachers. Working hours for full time coaches are irregular and involve travels. The work can be stressful owing to the intensely competitive nature of the job. They can design the coaching programme. They can engage in various schools, colleges, universities, clubs etc.
- 5. Health Educator:** - Health educator are a central part of community health education programs. The main objective for a health educator is to prevent disease and promote healthy lifestyle through knowledge and behavior change. Heath educators work to encourage wellness through educating individuals and communities about behaviors in an effort to promote,



maintain, and improve healthy lifestyles. They attempt to prevent illnesses by informing and educating individuals and communities about health-related topics, such as the importance of exercise, proper nutrition, how to avoid sexually transmitted diseases, and illnesses such as diabetes. Health educators also work with collecting and analyzing data for research and presenting preventative health care programs. These individuals have the skills to organize and address communities about these concerns and issues that affect the health of a certain area. Health educators typically work in health departments, community organizations, corporations/worksites, volunteer organizations, schools, colleges, and governmental organizations.

6. **Exercise Therapist:** - Exercise therapist provide services that help restore function, improve mobility, relieve pain and prevent or limit permanent physical disabilities of people suffering from injuries or diseases.
7. **Occupational Therapist:** - Occupational therapist helps people to improve their ability to perform tasks in their daily living and working environment. They work with individuals who have conditions that are mentally, physically, developmentally or emotionally disabling. They may also known as counselor.
8. **Athletic Trainer:** - Athletic trainers are one of the first health care providers when injuries occur. They are heavily involved in the rehabilitation and recognition of injuries. They often help to prevent injuries by advising on the proper use of equipment and applying protective devices. Athletic trainer's works under the supervision of licensed physician and in corporation with other health care providers.
9. **Fitness Specialist, Personal Fitness Trainer and Fitness Director:**  
- Fitness workers lead, instruct, and motivate individuals or groups in exercise activities, including cardiovascular exercise, strength training, and stretching. They work in commercial and nonprofit health clubs, country clubs, hospitals, universities, resorts, and clients' homes. Increasingly, fitness workers also are found in workplaces, where they organize and direct health and fitness programs for employees of all ages.
10. **Recreation Worker:** - People spend much of their leisure time participating in a wide variety of organized recreational activities, such as arts and craft, the performing arts, camping, sports, and outdoor adventure activities. Recreation workers plan, organize, and direct these activities in local playgrounds and recreation areas, parks, community centers, religious organizations, camps, theme parks, and tourist attractions.
11. **Geriatric Fitness Specialist:** - Geriatrics refers to the clinical aspects of aging and comprehensive health care of older persons. A geriatric fitness specialist is a combination of a fitness worker and an exercise therapist.

**12. Sports Medicine:** - Sports medicine consists of the medical field dealing with injuries obtained in athletic fields, as well as prevention and treatment. The main purpose of the position is preventing, limiting and treating injuries to reach full athletic performance. Sports medicine includes athletic training, biomechanics. Exercise physiology and nutrition. Sports medicine also works with non-professional athletes and those participating in various recreational activities; for example children involved in youth sports or older adults.

**13. Sports Management:** - The sports management field has grown drastically over the past several years. The sports management field requires highly educated and trained professionals. Several of the careers that sports management offers require an individual to have hands on experience. This can be reached by doing internships with companies, organization, non-profits and educational systems. Some examples of sport's management careers are:

- ❖ Athletic administration
- ❖ Sports Journalist
- ❖ Fitness management
- ❖ Sporting goods
- ❖ Sports agents
- ❖ Arena management
- ❖ Program directors in community sport programs
- ❖ Marketing and promotions director
- ❖ Academic services for students and athletes
- ❖ Corporate sales director
- ❖ Director of ticketing and finance
- ❖ Sporting goods sales representative
- ❖ Facilities coordinator
- ❖ Athletic director
- ❖ Fitness facility manager
- ❖ Sports marketer
- ❖ Sports information director
- ❖ Professor of sports management

**14. Sports Commentator:-** In sports broadcasting, a sports commentator (also known as sports announcer, sportscaster or play-by-play announcer) gives a running commentary of a game or event in real time, usually during

a live broadcast, traditionally delivered in the historical present tense. The comments are normally a voiceover, with the sounds of the action and spectators also heard in the background. In the case of television commentary, the commentators are on screen rarely if at all during the event (although they may appear on camera at the start or near the end of the broadcast).

**15. Officers in Indian Defense Service:** - A career in defense forces promises one of the most prestigious and respected positions in the country. Youngsters who aspire to choose a career of excitement, adventure, and challenges can find no better place than defense to meet all their professional expectations. The Indian Armed Forces are the military forces of India which consist of four professional uniformed services: The Indian Army, Indian Air Force, Indian Navy and Indian Coast Guard. The various paramilitary organizations and various inter-service institutions also help the Indian Armed Forces. The Ministry of Defense is responsible for the management of armed forces in India.

**16. Referee/Umpire/Game Official:** - A referee is the person of authority in a variety of sports who is responsible for presiding over the game from a neutral point of view and making on the fly decisions that enforce the rules of the sport, including sportsmanship decisions such as ejection. The official tasked with this job may be known in addition to referee by a variety of other titles as well (often depending on the sport) including umpire, judge, arbiter, lineman, timekeeper and technical official.

## Conclusion

All the above are the decent jobs, prospective after attaining the physical education qualification. Students can opt according to their interest. Even no steps have been taken by our state government to provide the facilities and opportunities to the students. Moreover India has the policy but no have proper implementation. So this is the time to review once again for making a proper policy to uplift the standard of the physical education in the country to strengthen the sports culture as well as the providing the jobs opportunities for the betterment of sports personalities and physical education professionals.

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# Comparative Study of Self- Concept and Sports Competition Anxiety Between High Achieving and Low Achieving National Level Footballers

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## Abstract

The purpose of the study was “Comparative Study of self- concept and sports competition anxiety between High Achieving and Low Achieving National Level Footballers”. The subjects for this study were male National Football players. One hundred forty four subjects were selected for the study. Seventy two were those High Achieving National Level Footballers and Seventy two were those Low Achieving National Level Footballers. The age group of footballers was ranged between 19 to 28 years. To find out the self- concept, sports competition anxiety of different National level football players, the research scholar selected the questionnaires namely self- concept, sports competition anxiety Questionnaire. To determine the comparative differentials of self- concept, sports competition anxiety between High Achieving and Low Achieving National Level Footballers, the test of significance (‘t’-Ratio) was employed. Further, the level of significance was set at 0.05 level of confidence. The findings of the study reveal that there was significant difference in case of self-concept where High Achieving National Level Footballers exhibited better self-concept in comparison with the Low Achieving National Level Footballers. The insignificant difference was found in case of sports competition anxiety test between High Achieving and Low Achieving National Level Footballers may be due to the reason that the players were almost of the same standard with a similar kind of experience which must have been a probable cause.

**Keyword:** self- concept and sports competition anxiety.

## Introduction

**S**ports are as old as the human society and it holds a prominent place in the modern life. Millions of people participate in sports activities, watch and read about them and spend billions of dollars annually on sports

activities and equipment. It now enjoys a popularity which outstrips any other form of social activity. It has become an integral part of the educational process as physical education and sports have been included in the regular curriculum. The students are taught various games and sports in a systematic manner. Besides teaching, the students are evaluated in their performance. Many people participate in games and sports for deriving physical, mental, social and emotional benefits. self concept as “An organized configuration of perception of the self which are admissible to awareness. It is compared of such elements as the perception of one’s characteristics and abilities, the percept and concept of the self in relation to others and to the environment”. The mental and conceptual awareness one holds of himself. Includes: physical, psychological, and social attributes; and can be influenced by its attitudes, habits, beliefs and ideas. These components and attributes can each be condensed to the general concepts of self-image and the self-esteem. It is the state of mind in which the individual responds with discomfort to some event that has occurred or is going to occur. The person’s worries about the event, their occurrence and consequences in general are the sources of anxiety; however the anxiety can be either somatic or cognitive in nature. The unpleasant emotional state consisting of psycho-physiological responses to anticipation of unreal or imagined danger, ostensibly resulting from unrecognized intra-psyche conflict. Physiological concomitants include increased heart rate, altered respiration rate, sweating, trembling, weakness and fatigue; psychological concomitants include feelings of impending danger, apprehension and tension. Anxiety is a state of emotional and physical disturbances included in a person by real or imagined threat. In psychology the term refers to disturbances caused by threats that are only apparent to the individual and cause him to behave in a way that is not relevant to the true situations. It is the state of mind in which the individual responds with discomfort to some event that has occurred or is going to occur. The person’s worries about the event, their occurrence and consequences in general are the sources of anxiety; however the anxiety can be either somatic or cognitive in nature.

## **Objectives**

- ❖ To explore the self-concept and sports competition anxiety of High Achieving and Low Achieving National Level Footballers.
- ❖ To compare the self-concept of High Achieving and Low Achieving National Level Footballers.
- ❖ To compare the anxiety of High Achieving and Low Achieving National Level Footballers.

The results of the study and the quantum of knowledge in physical education especially in the area of sports psychology and football.

Hypothesis It was hypothesized that there may not be any significant difference in self-concept, Sports Competition anxiety, between High Achieving and Low Achieving National Level Footballers.

**Methodology** The study was confined to One hundred forty four Senior Level Footballers .Seventy two High Achieving and Seventy two Low Achieving National Level Footballers were selected (age group of 19 to 28 years). The data was collected in the 68th Shantosh Trophy National Football Tournament held Kanchanjanga Stadium Siliguri from 24th February to 9th March 2014. One hundred forty four subjects by administering the tests for the selected test items on the different National level football players.

**Sampling** The subjects for this study were male National Football players, One hundred forty four subjects were selected for the study. Seventy two were those High Achieving National Level Footballers and Seventy two were those Low Achieving National Level Footballers. The age group of footballers was ranged between 19 to 28 years.

## Procedures

The self-concept score of the subjects was obtained by using Self-Concept Questionnaire (SCQ) developed by Dr. Raj Kumar Saraswat. The sports competition anxiety score of the subjects was obtained by using Sports Competition Anxiety Questionnaire developed by Renier-Martin.

## Statistical Procedure

To determine the comparative differentials of Self-Concept and The sports competition anxiety between High Achieving and Low Achieving National Level Footballers, the test of significance ('t'-Ratio) was employed. Further, the level of significance was set at 0.05 level of confidence.

## Results

*Table – 1*

*Significance Of Difference Between High Achieving And Low Achieving National Level Footballers On Self Concept In Numbers*

Variables	M-1	M-2	MD	SE	't' Ratio	Required 't' Ratio
Self-Concept	186.00	180.18	05.82	01.65	03.52*	01.98

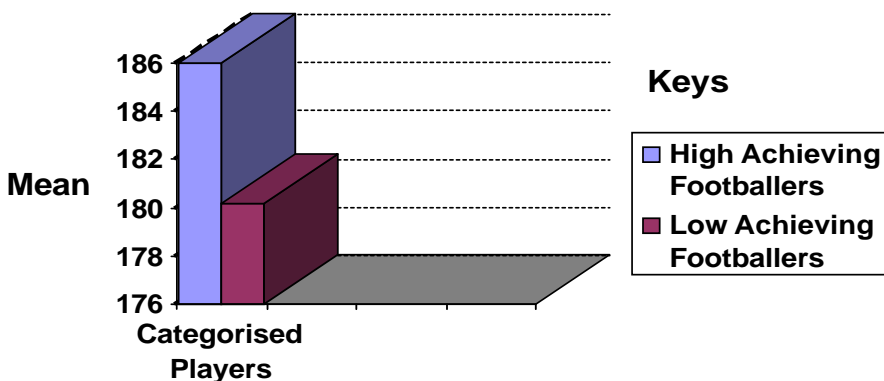
*\* Significant at 0.05 level of Confidence*

*M1 = Mean of High Achieving National Level Footballers*

*M2 = Mean of Low Achieving National Level Footballers*

From the above table 1, it is revealed that there was significant difference in case of Self Concept Test as calculated 't' value (03.52) was greater than tabulated 't' value (1.98) at 0.05 level of significance with 142 degree of freedom. Thus, it may be concluded that there was significant difference between High Achieving and Low Achieving National Level Footballers related to Self Concept Test, in

which mean Self Concept Test is significantly higher for High Achieving National Level Footballers than Low Achieving National Level Footballers at 0.05 level of significance. The findings of the table 1 are presented in figure 1.



*Figure 1: Graphical Depiction of Mean values of Self Concept test between High Achieving and Low Achieving National Level Footballers.*

*Table – 2*

*Significance Of Difference Between High Achieving And Low Achieving National Level Footballers On Sports Competition Anxiety In Numbers*

Variables	M-1	M-2	MD	SE	't' Ratio	Required 't' Ratio
Sports Competition Anxiety	20.46	19.84	00.62	00.56	01.10	01.98

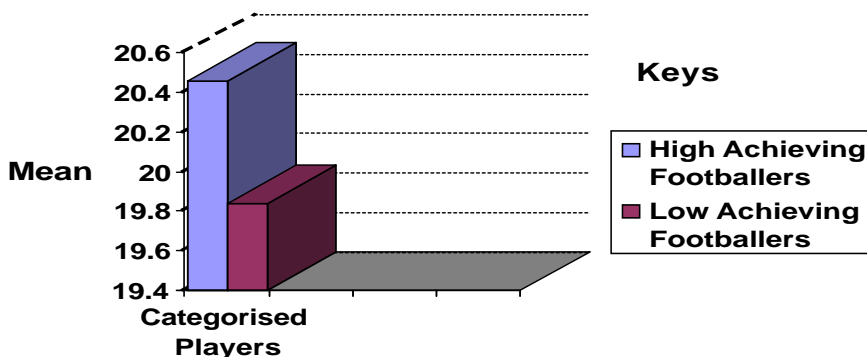
*\* Significant at 0.05 level of Confidence*

*M1 = Mean of High Achieving National Level Footballers*

*M2 = Mean of Low Achieving National Level Footballers*

From the above table 2, it is revealed that there was insignificant difference in case of Sports Competition Anxiety Test as calculated 't' value (01.10) was less than tabulated 't' value (1.98) at 0.05 level of significance with 142 degree of freedom. Thus, it may be concluded that there was insignificant difference between High Achieving and Low Achieving National Level Footballers related to Sports Competition Anxiety Test, in which mean Sports Competition Anxiety Test is insignificantly higher for High Achieving National Level Footballers than Low

Achieving National Level Footballers at 0.05 level of significance. The findings of the table 2 are presented in figure 2.



*Figure 2: Graphical Depiction of Mean values of Sports Competition Anxiety test between High Achieving and Low Achieving National Level Footballers.*

## Discussion

Significant difference was found in case of self-concept where High Achieving National Level Footballers exhibited better self-concept in comparison with the Low Achieving National Level Footballers. It may be due to the greater awareness of High Achieving National Level Footballers towards physical, social, temperamental, educational, moral and intellectual ability. The insignificant difference in sports competition anxiety test between High Achieving and Low Achieving National Level Footballers may be due to the reason that the players were almost of the same standard with a similar kind of experience which must have been a probable cause. In addition, players have been coached by specialist coaches who must have played a significant role by imparting psychological aspects in the coaching which might have been a contributing factor in not finding out the significant difference. In addition, the High Achieving and Low Achieving National Level Footballers get a similar kind of exposure which also must be a contributing factor in the insignificant difference.

## Conclusions

Within the limitations of the study and on the basis of the results of the study, the following conclusions may be drawn:

There was Significant difference was found in case of self-concept where High Achieving National Level Footballers exhibited better self-concept and in



comparison with the Low Achieving National Level Footballers.

The insignificant difference was found in case of sports competition anxiety where High Achieving National Level Footballers exhibited less anxiety in comparison with the Low Achieving National Level Footballers.

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# Weight or Resistance Training Method for Better Soccer Performance

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## Abstract

Training improves our performance. The function of training method is to produce change. It is upgrading the person's skill or the addition of a skill, it is important to understand that training method as an integral part of what is needed to accomplish the long-term goals of the soccer teams. There are various types of training methods we can use to obtain the required improvement in fitness and performances of soccer player. Weight or resistance training is one of the most important methods which can use to improve the fitness and performance of the soccer player. Soccer strength training is crucial for athletes to prepare them for a strenuous 90 minute match. There are a number of soccer weights or resistance training exercises that can be done to build muscle. These are squats, sprints, uphill run, power jumps, strength training, etc. In this paper we can discuss the weight or resistance training which can improve the performance of the soccer players.

**Key words:** weight or resistance training, soccer player, performance.

## Introduction

**W**hen we play a sport, we want to do the best we can. Training method improves our performance. Selecting the appropriate training methods to incorporate in our training program is important for a number of reasons.

First, a focused, structure, individualized training can increase our breathing rate and our efficient use of oxygen. It can also help our body work at a higher level of exercise for a longer time because it gets rid of lactic acid. It also helps our body convert more fat to energy (that is lipid metabolism). Third, it also leads to physical changes in the muscles, helping them to be more tolerant to the stresses caused by prolonged exertion, particularly by strengthening the connective tissue between muscle fibres so that they experience fewer micro traumas.

There are various types of training methods we can use to obtain the required improvement in fitness and performances. These methods include: Weight or resistance training, circuit training, plyometric training, interval training,

continuous or aerobic training.

## **Weight or Resistance Training Method for Soccer**

Soccer strength training is crucial for athletes to prepare them for a strenuous 90 minute match. This physically demanding sport requires many physical attributes, including muscular strength. Attaining muscular strength can be achieved through a series of strength training exercises that involve building lean muscle mass. There are a number of soccer strength training exercises that can be done to build muscle.

### **Squats**

Squatting is the most well known exercise for building leg muscle. This exercise is a regular part of a soccer player's work-out routine, since it keeps their leg muscles strong and powerful. Begin by standing with feet shoulder-width apart. While keeping the spine straight and the buttocks sticking out, slowly lower our body until our knees are at a 90 degree angle. Slowly raise our body until we are back in the starting position. Try to do about three sets of 10 reps to get maximum result. Squats can also be done one leg at a time for an even greater, more intense work out. To perform these, keep one leg out in front of us while lowering our body. Hold onto an object for support and balance. Alternate leg, and try to perform about three sets of 10 reps on each leg.

### **Sprints**

Sprinting engages the fast-twitch muscle fibres in the quads and hamstring. Sprint can be done on a track, in a park or even on a treadmill. On a track, sprint between 30 to 50 feet as fast as possible, and then jog lightly for another 50 feet. Continue this cycle about five to ten times. Each time we perform this routine, we should be able to increase our sprinting length, while keeping our jog the same length. Be sure to adequately warm-up and stretch before engaging in this exercise in order to minimize pulling our hamstring muscle.

### **Uphill Run**

Running uphill is a very vigorous and exhausting exercise, which produce better results. Soccer players usually engage in uphill sprints as part of their training regimen because of how effective this exercise is at building leg muscle and strength. Find a hill that at least a few seconds to run up. Sprint up to the top as fast as we can, then lightly jog back down. Without stopping at the bottom of the hill, repeat this uphill sprint. Continue this cycle about 5 to 10 times to get the full effect of the sprints.

### **Power Jumps**

An explosive burst of power jumping has wonderful effects on the muscles in the legs. These Power jumps develop power and in all muscles of the legs, including

the quadriceps, hamstring and calves. The key is to do them quickly, with a lot of power, and to get as much height as possible. To perform these jumps properly and effectively, begin by standing with our feet shoulder-width apart. Get into a semi-squat position, and with all our might, jump vertically as high as we can. As we jump in the air, drive our knees to our chest to get even more out of the exercise. Do about five sets of 20 jumps to maximize muscle building.

## **Strength Training**

The benefit of Strength and Strength Training for footballer is well supported by research. For example, De Proft and colleagues had one group of Belgian perform extra weight training during the season. Compared to a control group of colleagues who did not extra training, the players improved their kicking power and leg strength. Reilly (1990) showed that the stronger players outlasted the weaker players in terms of a regular place in the team, and had reduced injury risks. He recommends that leg strength in particular in developed, especially in the quadriceps and hamstrings, to help stabilise the knee joint, which is the most frequently injured joint in soccer. Apor (1998), a Hungarian researcher who has been involved in long-term studies of Hungarian professionals, agrees, saying that knee extension torque has been associated with success in the game and that strong hamstring muscles in relation to quadriceps are crucial to knee injury prevention. Another common injury is hernia, for which the best protection is developing strong abdominal muscles. From the review of the research, we can conclude that strength and strength training, especially in the legs and trunk, are important for soccer players who want to improve kick performance and reduce the risk of injury. To increase general strength, a workout consisting of leg press, leg extension, leg curl, bench press, lat pull down, abdominal and lower back exercises, would be ideal. This can be done with multi-gym equipment, which is also save and easy to use.

## **Step by Step**

Another point to remember is that maximum strength training should be a progression from general strength training with sub maximal loads. Heavy maximal resistance exercise, while very effective, is for advanced strength trainees only. Zatsiorsky recommends that good abdominal and lower back strength are essential if heavy lifting exercise are to be used. Thus the first step for improved sprint speed is ensuring a good basic level of strength. American trainers George Dintiman and Robert Ward recommend that an athlete should be able to perform one maximum leg press of at least 2.5 times body weight, and have a hamstring to quadriceps ratio of least 75-80%. Both these measures can be tested on the standard gym machines. Good abdominal and lower back strength are also essential for sprinting speed, as the trunk muscles are required to stabilize the sprinting movement.

## **Conclusion**

The present paper shows about the Weight or resistance training method used for better soccer performance. Training improves our performance. The function of training method is to produce change. It is upgrading the person's skill or the addition of a skill, it is important to understand that training method as an integral part of what is needed to accomplish the long –term goals of the soccer teams. It can also help soccer players to work at a higher level of competition for a longer time because it helps it get rid of lactic acid. It also helps soccer players, convert more fat to energy (that is lipid metabolism) and also leads to physical changes in the muscles, helping them to be more tolerant to the stresses prolong exertion, particularly by systematic implementation of training method based on sports training principle and periodization of soccer season.

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# Effect of Carbohydrate Intake of Selected Motor Ability on University Players Performance

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## Abstract

The aim of this study is to find out the effect of carbohydrate consumption on the performance of motor ability of university players. To achieve the purpose of the study, twenty male university players were selected randomly from Lakshmibai national institute of physical education, Gwalior. The selected subjects were divided into two groups of ten each. Group I underwent 10 days carbohydrate consumption. The criterion variables selected for the present study are agility, medicine ball throw, standing broad jump, jump and reach test and cardio-respiratory endurance. The experimental group underwent carbohydrate consumption for 10 days with the gap of 24 hours. The study was evaluated on the basis of collected data assessed by "Paired t test" and T-ratio". The level of significance was fixed at 0.05. The result of the study showed that carbohydrate consumption for 10 days with the gap of 24 hours significantly improved agility ( $t=6.622^*$ ), medicine ball throw ( $t=6.333^*$ ), standing broad jump ( $t=11.19^*$ ), jump and reach test ( $t=5.832^*$ ) and cardio-respiratory endurance ( $t=4.265^*$ ) since the calculated value of t (2.00) for the selected degree of freedom and level of significant whereas no significant between-group differences were noted in control group. It is concluded that carbohydrate consumption for 10 days with the gap of 24 hours is effective enough to improve motor ability of university players.

## Introduction

The history of man to a large extent has been a struggle to obtain food. Until turn of the century science of nutrition had a limited range. (Park K; 2007). Carbohydrates are the main source of energy in all activities. They provide quick energy to the body and are not stored in the body for long. A carbohydrate is the most easily digested food. The primary function of carbohydrates is to provide energy for the body, especially the brain and nervous system. The body breaks down starches and sugars into substances called glucose that is used for energy by the body (Dr. Anand S. 2005). Carbohydrates reserve (glycogen) of a human adult is about 500 grams. This reserve is rapidly exhausted

when a man is fasting (Park K;2007). Each teaspoon of sugar contains 17 calories, this amount to 2, 31,000 calories or 66 pounds of potential body fat if the energy is not used as fuel for daily living (Dumphy M;2001). During muscular exercise, carbohydrates and lipids represent the major part of the substrates used for the production of energy. (Glisenzinsk D and et. al. ;2008). Sprint performance is significantly improved when a carbohydrate/protein supplement is ingested during repeated bouts of short duration, high-intensity cycling. (Harmon J.H. and et. al., 2007). Both muscle glycogen and plasma glucose are oxidised by skeletal muscles to supply energy during prolonged exercise. Although the underlying mechanism are uncertain. There appears to be a gradual shift from intramuscular glycogen towards blood borne glucose as the predominant carbohydrate energy source as exercise proceeds and as a muscle glycogen is depleted. (Coyle E.F and et. al.; 1993).

## **Subjects and Methods**

Simple random sampling technique was used to select the sample. All the subjects are residing in the university hostel and although they belonged to difference classes, are habitual of fairly heavy work. It is reasonable to assume that they were seasonably well condition.

## **Sampling**

20 male students of LNIPE were randomly selected as the subjects for this study. The age group was ranged from 17 to 25 years.

## **Study Tools**

The research scholar has gone through all the scientific literature pertaining to the effect of carbohydrate consumption on motor fitness components from books, journals, periodicals, available in the library of Lakshmibai National Institute of Physical Education, Gwalior keeping the feasibility in mind especially in case of availability of instruments.

- ❖ The following variables are selected
- ❖ Agility
- ❖ Medicine Ball throw
- ❖ Standing Broad Jump
- ❖ Jump and reach Test
- ❖ Cardio respiratory endurance

## **Method of Carbohydrate Consumption**

20 gram carbohydrate powder intake in liquid form (as mixing in 200 ml. of water) and was given during evening session before normal daily sports activities for 10 days with the gap of 24 hours.

## Collection of Data

There were two groups of 10 subjects in each pre-test was taken on selected motor fitness components of both groups. Then carbohydrate consumption to the experimental group and on the other hand placebo was given to the control group for the duration of 10 days. After that post-test of both the groups was conducted on the same components.

The testes used were explained to the subjects prior to their administration. The subjects were given chance to practice the tests and made them familiar to the test being used.

## Statistical Analysis

The study was evaluated on the basis of collected data assessed by “Paired t test” and T-ratio”. The level of significance was fixed at 0.05.

## Results

The study was conducted to determine the effect of carbohydrate consumption on the performance of agility, medicine ball throw, standing broad jump, jump and reach test and cardio respiratory endurance. The statistical analysis of data collected on twenty (N=20) subjects. The results pertaining to the motor ability performance in experimental group and control (placebo group) are presented in Table 1. Significant between-group differences were found in agility ( $t=6.622^*$ ), Medicine ball throw ( $t=6.333^*$ ), Standing broad jump ( $t=11.19^*$ ), Jump and reach test ( $t=5.832^*$ ) and cardio-respiratory endurance ( $t=4.265^*$ ) since the calculated value of  $t$  (2.00) for the selected degree of freedom and level of significant whereas no significant between-group differences were noted in control group, since the calculated value of  $t$  is smaller than tabulated value of  $t$  (2.00) for the selected degree of freedom and level of significance. The graphical representation of  $t$ -value of motor ability in experimental and control groups ( $n= 20$  each) of carbohydrate consumption is exhibited in figure 1.

**Table 1**

*Mean values ( $\pm$ SD) of motor ability of experimental and control groups ( $n = 10$  each) before (Pre) and after (Post) carbohydrate consumption (experimental group only).*

Variables	Experimental group			Control group		
	Pre	Post	t-value	Pre	Post	t-value
Agility (A)	6.540 $\pm$ 0.26	6.345 $\pm$ 0.22	6.622*	6.520 $\pm$ 0.13	6.525 $\pm$ 0.13	0.224
Medicine Ball Throw (MBT)	11.19 $\pm$ 0.96	11.88 $\pm$ 0.96	6.333*	11.54 $\pm$ 1.14	11.41 $\pm$ 1.15	0.691
Standing Broad Jump (SBJ)	2.589 $\pm$ 0.10	2.682 $\pm$ 0.10	11.19*	2.588 $\pm$ 0.11	2.591 $\pm$ 0.10	0.880



Jump and Reach Test (JRC)	75.50 ± 7.51	79.10 ± 7.16	5.832*	70.65 ± 4.39	71.45 ± 4.39	1.848
Cardio-respiratory Endurance (CRE)	1761.1 ± 137.4	1855.9 ± 159.5	4.265*	1597.5 ± 236.2	1647.3 ± 211.7	1.713

\*\*\* Significantly ( $p < 0.005$ ) different from the respective 'Pre' value

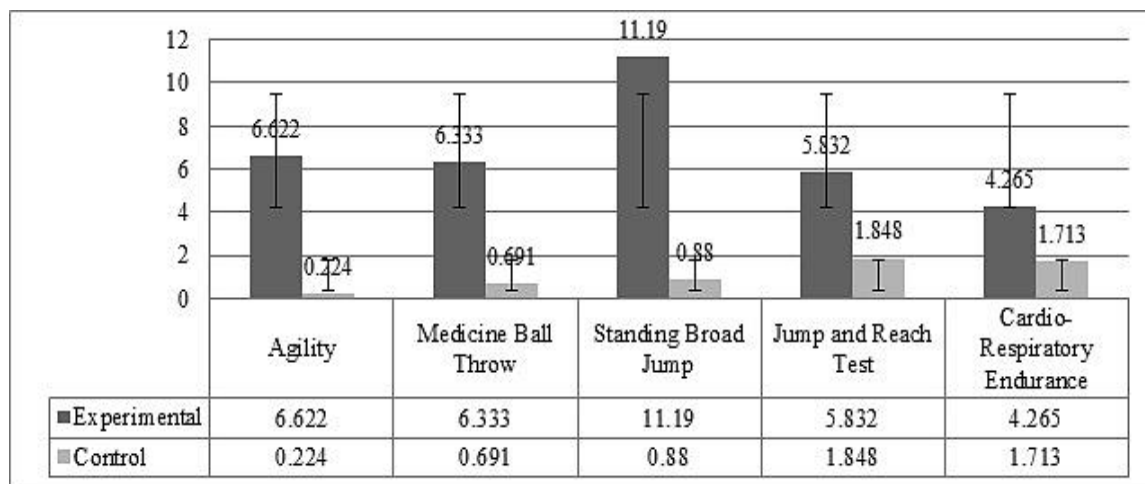


Figure 1. Graphical representation of t-value of motor ability in experimental and control groups ( $n = 20$  each) of carbohydrate consumption

## Discussion

Physical and physiological responses to nutrition component, including carbohydrate ingestion have been well studied by many researchers. It may be expected to positively improve many motor abilities. In a previous study of carbohydrate ingestion, the authors speculated that improvement in endurance performance (Caitlin C. and et al, 2008). Carbohydrate ingestion shown to be one of the most effective methods for improvement sprint performance immediately following 90 minute of running at 70-80% of maximal heart rate reserve on thirty young active men allocated randomly to 2 carbohydrate (CHO, N=15) and placebo (PL, N=15) groups. The results suggested that carbohydrate, protein, and fat metabolism during exercise after oral carnitine supplementation in humans on 20 non-vegetarian active meals and through data found that 2 weak of L-carnitine L-tartrate (LC) supplementation does not affect fat, carbohydrate and protein contribution to metabolism during prolonged moderate-intensity cycling exercise, it indicates that the oral LC supplementation might have the potential to reduce the metabolic stress of exercise or warrants further investigation (Broad E.M. and et al. 2008). Therefore, more studies are needed to determine the result of



carbohydrate ingestion and how it affects motor ability. The experimental findings of this study indicate that the significant between-group differences were found in the carbohydrate ingestion on motor ability that is, agility ( $t=6.622$ ), medicine ball throw ( $t=6.333$ ), standing broad jump ( $t=11.19$ ), jump and reach test ( $t= 5.832$ ) and cardio-respiratory endurance ( $t=4.265$ ) and non-significant between-group differences were found in control group on agility ( $t=0.224$ ), medicine ball throw ( $t=0.691$ ), standing broad jump ( $t=0.88$ ), jump and reach test ( $t= 1.848$ ) and cardio-respiratory endurance ( $t=1.713$ ) whereas, no significant changes were noted in the control group. These finding are supported by Carlson, Green S and Schumm.

## Conclusion

From the result of the study following conclusions may be drawn that there was a significant between-group differences were found in the carbohydrate ingestion on motor ability that is, agility ( $t=6.622$ ), medicine ball throw ( $t=6.333$ ), standing broad jump ( $t=11.19$ ), jump and reach test ( $t= 5.832$ ) and cardio-respiratory endurance ( $t=4.265$ ) and non-significant between-group differences were found in control group on agility ( $t=0.224$ ), medicine ball throw ( $t=0.691$ ), standing broad jump ( $t=0.88$ ), jump and reach test ( $t= 1.848$ ) and cardio-respiratory endurance ( $t=1.713$ ) whereas, no significant changes were noted in the control group.

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