

## SUMMARY

### Introduction :

Basketball is one of the sports that is marked by rapid change from defense to attack and vice versa, this need from the player to conduct many motor skills like ability for high jump to collect high balls and performing offensive and defensive rebound and shooting from jump beside run with various speeds, so the nature of physical education put load on body systems and if one looks for the functional performance of the basketball player, one found that the player do average 84 jumps and change his direction about 168 time and carries out many shooting and defensive movement, all are skills which their time of performance is very small limited to seconds with high intensity so they are anaerobic skills and this highlight the need of basketball players to develop the anaerobic energy production system that is 90% of the energy production for basketball players, this attract the researcher during a sequence of competitions hold by the Egyptian basketball federation for the weak anaerobic abilities of the players and its negative effect on the functional, skillful, and physical performance mainly near the match end and in extra time.

### Research aims :

- 1- Knowing the effect of developing the anaerobic ability in the end of the training units on some physiological variables (anaerobic power, anaerobic capacity, lactic acid concentration at rest and after exertion, glucose level at rest and after exertion).

- 2- Knowing the effect of developing the anaerobic ability in the end of the training units on some special physical qualities (cardiorespiratory endurance, speed, explosive strength, strength endurance, speed endurance, agility).
- 3- Knowing the effect of developing the anaerobic ability in the end of the training units on some basic skills (dribbling, shooting, passing).

#### **Research hypothesis :**

- 1- There are statistical significant difference between the pre- and post- measurements for the control group in some physiological variables, special physical qualities, basic skills for basketball youngsters 16-18 years in favour of the post-measurement.
- 2- There are statistical significant difference between the pre- and post- measurements for the experimental group in some physiological variables, special physical qualities, basic skills for basketball youngsters 16-18 years in favour of the post-measurement.
- 3- There are statistical significant difference between the control and experimental groups in the post- measurements for the control group in some physiological variables, special physical qualities, basic skills for basketball youngsters 16-18 years in favour of the experimental group.

**Research procedures :**

**Research method :**

The researcher used the experimental method.

**Research sample :**

The essential study on a sample from Port-Fouad club and was 20 players divided to two groups, one experimental and the other control each is 10 players. The experimental group undergone exercises for anaerobic power neat the end of the main part of the training unit, while the control group undergone the training program without exercises for the anaerobic power, both groups undergone a similar program in (warm-up, exercises for special and general physical qualities, exercises for basic skills- exercises for tactics- cooling), both groups undergone the following tests before and after the experiment :

**Physiological tests :**

Anaerobic power- anaerobic capacity- lactic acid concentration at rest and after exercise- glucose concentration at rest and after exercise.

**Physical tests :**

Cardiorespiratory endurance, speed, explosive strength, strength endurance, speed endurance, agility.

**Skillful tests :**

**Dribbling, shooting, passing.**

**Statistical analysis :**

**The researcher used the following statistical management :**

- **Wilcoxon rank test to know the significance of differences between the pre- and post measurements of one group.**
- **Man Whitney test to know the significance of differences between both groups in the post-measurements.**

**Research results :**

- 1- **Effect of training program and similar parts for both groups except anaerobic power exercises on the control group in (anaerobic power, anaerobic capacity- glucose concentration after exertion, some physical qualities and basic skills) with significant statistical differences between the pre- and post-measurements of the control group in favour of the post-measurements.**
- 2- **The training program that include special exercises for anaerobic power development in the end of the training unit with the similar parts of the program for both groups showed statistically significant improvement on the physiological, physical and skillful variables for basketball youngsters as the results showed significant statistical differences between the pre- and post-measurements of the experimental group in favour of the post-measurements in all variables.**

- 3- The experimental group that used the anaerobic power exercises in addition to similar parts of the training program for both groups showed statistically significant improvement better than the control group in the post-measurements, as the results showed statistically significant differences between both groups in favour of the experimental group in the post-measurement in all variables.
- 4- The percentage of improvement for the experimental group is better than the control group in the physiological variables, physical qualities and basic skills under investigation.

#### **Recommendations :**

- 1- Attention for anaerobic power exercises in the end of the training unit for its positive effect on the functional abilities of the body, and is considered the base for delaying fatigue appearance.
- 2- In planning courses for coaches in Egyptian basketball federation, care for program to study the importance of the physiological basis of sports training and the relationship between training and physiology for the success of the training process.
- 3- Using special tests for anaerobic power in selection of basketball players.
- 4- Using lactic acid concentration in standardization of the training loads.
- 5- Conducting more researches on other samples and in different sports activities.

## ABSTRACT

### **Effect of Developing The Anaerobic Ability at The End of The Training Unit on Some Physiological Variables, Special Physical Qualities and Basic Skills of Basketball Youngster 16-18 years**

This research aims to put a group of exercises for anaerobic power development near the end of the training unit and knowing the effect of developing anaerobic power on some physiological variables, some special physical qualities, some basic skills, the researcher used the experimental method with two groups design one experimental and the other is control and each group include 10 players.

The most important results was that there is marked improvement in both experimental and control groups in some physiological, physical and skillful variables under investigation but the improvement was more marked and significant in the experimental group when compared to control group.

**Suez Canal University**

Faculty of Physical Education

Port - Said

Sports Training Dep.

**Effect of Developing The Anaerobic Ability at The  
End of The Training Unit on Some Physiological  
Variables, Special Physical Qualities and Basic  
Skills of Basketball Youngster 16-18 years**

By

**Adel Mohamed Ramadan Abd Rabou**

Thesis Submitted For Partial Fulfillment For The  
Requirement of Ph.D degree in Physical Education

Supervisors

**Prof. Dr.**

**Said Abd El-Gawad El-Said**

Professor and Head of Health Science and Health  
Education Dep. and Dean of Port-Said Faculty of  
Physical Education,  
Suez Canal University



**Prof. Dr.**

**Mohamed El-Said Rohaiem**

Professor of Swimming in Port-Said Faculty of  
Physical Education, and Dean of Port-Said  
Faculty of Specific Education  
Suez Canal University

**Dr.**

**Hamdy Kassem Shalaby**

Lecturer of in Sports Training  
Port-Said Faculty of Physical  
Education,  
Suez Canal University



2001