



# International Journal of Physical Education, Sports and Health

P-ISSN: 2394-1685  
E-ISSN: 2394-1693  
IJPESH 2015; 1(3): 33-34  
© 2015 IJPESH  
www.kheljournal.com  
Received: 30-11-2014  
Accepted: 17-12-2014

**Mahipal**  
Junior Coach Athletics,  
Deptt. Of Sports & Youth Affairs,  
Panipat, Haryana (India).

## Comparison of Aerobic Endurance among Female Middle Distance Runners and Cross Country Runners

**Mahipal**

### Abstract

The aim of the present study was to compare the aerobic endurance among female middle distance runners and female cross country runners. To achieve the aim of the study a total no. of subjects were 40 female athletes in which 20 female middle distance runners and 20 female cross country runners; equally divided into two groups. The subjects' age was ranged between 18 to 25 years. All subjects are from affiliated Colleges of KU, Kurukshetra who had participated in inter collegiate cross country championship 2013-14. The data was randomly collected to measure the aerobic endurance the 12 min. cooper run & walk test was used. The Middle distance runners are of 800 meter and 1500 meter and Cross country runners of 6 Km. The 't' test was in used to compare the aerobic endurance among female middle distance runners and cross country runners. The level of significance value was in use 0.05. The result of the study shows that female cross country runners have good aerobic endurance compare to middle distance runners. It is recommended that female Middle distance and female cross Country runners must be given good endurance training to perform well in their respective events.

**Keywords:** Aerobic endurance, Middle Distance, Cross Country, Runners etc.

### 1. Introduction

Aerobic Endurance: is the ability of the body to perform repetitive movements that range from moderate to high intensity for a long period of time. It is one of the main fitness components which are very important for success in many sport activities like long distance running. It is also known to improve the function of the lungs, heart and blood vessels.

Aerobic Endurance is the amount of oxygen intake during exercise. Aerobic endurance is the time which you can exercise, without producing lactic acid in your muscles. During aerobic (with oxygen) work, the body is working at a level that the demands for oxygen and fuel can be meet by the body's intake. The only waste products formed are carbon-dioxide and water which are removed by sweating and breathing,

Aerobic endurance can be sub-divided as follows:

- Short aerobic-2 minutes to 8 minutes (lactic/aerobic)
- Medium aerobic- 8 minutes to 30 minutes(mainly aerobic)
- Long aerobic - 30 minutes + (aerobic) <sup>[1]</sup>.

#### 1.1 Middle distance

In athletics (Track & field) races that range in distance from 800 meter to 3000 meter in International competitions, middle distance races include the 800 meter, the 1500 meters and the 3000 meters (A steeple Chase event for men, but a regular run for women) an early favorite among middle distance races was the mile, which in the first half of the 20<sup>th</sup> century was run in times exceeding four minutes. Breaking the "four minute barrier" was considered unlikely. On May 6, 1954 however the 25 years old Roger Bannister of Great Britain set a record of 3 minutes 59.4 seconds in a dual minute at Oxford. With increasingly controlled climate & surface conditions and increasingly accurate timing devices, however the record was lowered many times thereafter <sup>[2]</sup>.

#### 1.2 Cross Country

Cross country also called cross country running, long distance running over open country; unlike the longer Marathon race, cross country races usually are not run along roads or paths. Events are held during the fall or winter months. In 1962 the IAAF adopted rules governing championship and international cross country running events both for men and for women.

**Correspondence:**  
**Mahipal**  
Junior Coach Athletics,  
Deptt. Of Sports & Youth  
Affairs, Panipat, Haryana  
(India).

IAAF standard distances for international competitions not less than 12,000 meters (7.5 miles) for men and 2,000-5,000 meters (1.25 – 3 miles) for women.

Cross Country teams are made up of six to nine athletes. In scoring the places in which team members finish (e.g; one point for first place, two points for second) are added together, and the team with the lowest total wins <sup>[3]</sup>.

**1.3 Aim**

To compare the aerobic endurance among female Middle Distance runners and female cross Country runners.

**1.4 Selection of subjects**

Total 40 female subjects in which 20 female Middle Distance runners and 20 female Cross Country runners were selected for the study from KU, Kurukshetra were taken as subjects. Their age ranged between 18-25 years.

**1.5 Tools**

12 minute Cooper run & walk test is used for collection of data.

**1.6 Procedure of data collection**

The Cooper test is a test of physical fitness. It was designed by Kenneth H. Cooper in 1968 for US military used in the original form; the point of the test is to run as far as possible

within 12 minutes.

To undertake this test you will require:

- 400 meter track
- Stop watch
- Whistle
- Technical official/assistant.

**2. Methods of Conducting the Test**

This test requires the female middle distance runners and female Cross country runners to run as far as possible in 12 minutes.

- The athlete warm up for 10 minutes.
- The Technical official gives command “Go” starts the stopwatch and the athletes commence the test.
- The Technical official keeps the athlete informed of the remaining time at the end of each lap(400m)
- The Technical official blows the whistle when the 12 minutes has elapsed and records the distance the athlete covered to the nearest 10 meters <sup>[4]</sup>.

**3. Results and Discussion**

The table No.1 showing the mean, S.D. Standard error mean, t-ratio of female middle distance runners and cross country runners in 12 min. Cooper run & walk test.

**Table 1.**

Results of 12 min.run & walk Cooper Test	Number	Mean	S.D.	Standard Error Mean	t	df	sig.(2-tailed)
Middle Distance runners	20	2666.00	291.031	65.076	3.638	38.00	0.001
Cross country runners	20	2926.00	130.360	29.149			

\*significant at 0.05 level

According to table 1, the mean value of aerobic endurance in female middle distance runners & Cross country runners were 2666.00 and 2926.00 respectively. There is a difference of 260 meters between both runners. The S.D. value was 291.031 and 130.360 respectively, The Standard error Mean was 65.076 and 29.149 respectively. The degree of freedom was 38 whereas the ‘t’ value was found 3.638. The result shows that female cross country runners are very good compare to middle distance runners.

**4. Conclusion**

It is concluded that cross Country runners having good aerobic endurance compare to middle distance runners. It may be due to the regular training of Cross country and requirement of endurance is high compare to Middle distance running.

**5. Recommendations**

1. It is recommended that good Aerobic Endurance training must be given to middle distance and Cross country runners.
2. It is recommended that similar studies can be conducted in different sports and games.

**6. Acknowledgement**

I am thankful to female athletes and Dr. Rajiv S. Kalsi, associate Prof. & Head deptt. Of Zoology to help in the study.

**7. References:**

1. <http://www.newhealthguide.org/Aerobic-Endurance.html>, accessed on 9 May, 2014.
2. [http://www.britannica.com/Ebchecked/topic/381174/middle distance running](http://www.britannica.com/Ebchecked/topic/381174/middle-distance-running) on 21 May, 2014.
3. [http://www.britannica.com/Ebchecked/topic/144063/cross country running](http://www.britannica.com/Ebchecked/topic/144063/cross-country-running) on 21 May, 2014.
4. Mackenzie B. Cooper vo2 max test [www] Available from: <http://www.brianmac.co.uk/gantest.htm>, accessed on May 21, 2014.
5. Kumar R. A Comparative study of Aerobic endurance among Middle distance runners and Long distance runners of Hyderabad; International Journal of Health, Physical Education and Computer Science in sports, 3(1), 80-85.