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## Effect of Aerobics Exercises on Selected Physical and Physiological Variables among College Women Hockey Players

Dr. D. Rajalakshmi

Associate Professor, AUCPE, Karaikudi

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**Abstract:** Aerobic means with oxygen and refers to the use of oxygen in the body's metabolic system or energy generating process. Aerobic capacity describes the functional capacity of the cardio Respiratory system which includes heart, lungs and blood vessels. Aerobic capacity is defined as the maximum amount of oxygen the body can use during a specified period, usually during intense exercise. "Aerobics" is a particular form of aerobic exercise. Aerobics classes generally involve rapid stepping patterns, performed to music with cues provided by an instructor. Group exercise aerobics can be divided into two major types: free style aerobics and pre-choreographed aerobics. The higher the measured cardio respiratory endurance level, the more oxygen has been transported to and used by exercising muscles, and the higher the level of intensity at which the individual can exercise. More simply stated, the higher the aerobic capacity, the higher the level of aerobic fitness. The Cooper and multi-stage fitness tests can also be used to assess functional aerobic capacity for particular jobs or activities. **Purpose:** This study was to find out the effect of aerobics exercises on selected physical and physiological variables among college women Hockey players. **Methodology:** This study was designed to deal with the impact of aerobic training on selected Physical and Physiological Variables among College Women Hockey Players. Thirty Women Hockey players from Alagappa University College of Physical Education were randomly selected as subjects and their age was between 19 to 23 years. They were assigned into two groups. The selected subjects were divided into experimental group and control group at random. **Statistical technique:** Analysis of 't' ratio was used in this study. The level of significance is 0.05 level of confidence which considered to be the appropriate from this study. **Conclusion:** Speed, Flexibility, Resting heart rate were significantly improved due to the influence of aerobic training group among College Women Hockey Players.

### 1. INTRODUCTION

Aerobic means with oxygen and refers to the use of oxygen in the body's metabolic system or energy generating process. Aerobic capacity describes the functional capacity of the cardio Respiratory system which includes heart, lungs and blood vessels. Aerobic capacity is defined as the maximum amount of oxygen the body can use during a specified period, usually during intense exercise. "Aerobics" is a particular form of aerobic exercise. Aerobics classes generally involve rapid stepping patterns, performed to music with cues provided by an instructor. Group exercise aerobics can be divided into two major types: free style aerobics and pre-choreographed aerobics. The higher the measured cardio respiratory endurance level, the more oxygen has been transported to and used by exercising muscles, and the higher the level of intensity at which the individual can exercise. More simply stated, the higher the aerobic capacity, the higher the level of aerobic fitness. The Cooper and multi-stage fitness tests can also be used to assess functional aerobic capacity for particular jobs or activities. Aerobics exercises (Cooper, Kenneth) moderate intensity workout that uses up oxygen at a rate in which the cardio respiratory system can replenish oxygen in the working muscles. Examples of such activity for fat loss when done in the right amounts by highly metabolic if done in excess. (org/wick/aerobic exercise.) (Michael Kent, 1997.)

### 2. STATEMENT OF THE PROBLEM

The purpose of the study is to find out the effect of aerobics exercises on selected physical and physiological variables among college women Hockey players.

#### Hypothesis

It was hypothesized that there was a significant difference on aerobics training group and control group on selected physical and physiological variables among college women Hockey players.

### 3. METHODOLOGY

#### Selection of subjects

This study was designed to deal with the impact of aerobic training on selected Physical and Physiological Variables among College Women Hockey Players. Thirty Women Hockey players from Alagappa University College of Physical Education were randomly selected as subjects and their age was between 19 to 23 years. They were assigned into two groups subject were divided into experimental group and control group at random

#### Selection of experimental variables

The research scholar reviewed the various significant changes on selected performance variables were selected to Aerobics training a period of six weeks 30 minutes time duration of training with the interval period of 5 minutes each excluding 5 minutes each for warm up and warm down, total duration completed for each subjects at 45 minutes for 3 days. The research scholar reviewed the variable literature from Book, Journals, periodicals, magazines and research papers taking in to consideration the following performance variable were selected.

#### Dependent variables

##### Physical variables

1. Speed - 50 Yard dash / Seconds.
2. Flexibility- Sit and reach/ Centimetre.

##### Physiological variable

1. Resting Heart Rate - Pulse monitor/ Minutes

#### Independent variable

1. Aerobic Training

**Table : A - Programme for aerobic training**

| S. No | Number of aerobic exercises    |
|-------|--------------------------------|
| 1     | Marching on the spot           |
| 2     | Bounding                       |
| 3     | Kick sideward                  |
| 4     | Kick front                     |
| 5     | Sideward bend                  |
| 6     | 'V' step                       |
| 7     | Alternative elbow & knee touch |

**Table : B - First week training programme**

| Days | Number of exercises | Time for total exercise | In between break | No of set | Total time duration |
|------|---------------------|-------------------------|------------------|-----------|---------------------|
| Mon  | 7                   | 30                      | 5                | 4         | 45                  |
| Wed  | 7                   | 30                      | 5                | 4         | 45                  |
| Fri  | 7                   | 30                      | 5                | 4         | 45                  |

**Table : C - Second week training programme**

| Days | Number of exercises | Time for total exercise | In between break | No of set | Total time duration |
|------|---------------------|-------------------------|------------------|-----------|---------------------|
| Mon  | 7                   | 30                      | 5                | 5         | 45                  |
| Wed  | 7                   | 30                      | 5                | 5         | 45                  |
| Fri  | 7                   | 30                      | 5                | 5         | 45                  |

**Table : D Third weeks training programme**

| Days | Number of exercises | Time for total exercise | In between break | No of set | Total time duration |
|------|---------------------|-------------------------|------------------|-----------|---------------------|
| Mon  | 7                   | 30                      | 5                | 6         | 45                  |
| Wed  | 7                   | 30                      | 5                | 6         | 45                  |
| Fri  | 7                   | 30                      | 5                | 6         | 45                  |

#### 4. ANALYSIS OF DATA

##### Statistical techniques

Analysis of 't' ratio was used in this study. The level of significance is 0.05 level of confidence which was considered to be the appropriate for this study.

**TABLE: E - SHOWING THE MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' VALUE OF EXPERIMENTAL AND CONTROL GROUP ON SPEED**

| Group              | No. of Subjects | Pre-Mean | Post-Mean | Standard Deviation |      | Std. Error Mean | T-ratio |
|--------------------|-----------------|----------|-----------|--------------------|------|-----------------|---------|
|                    |                 |          |           | Pre                | Post |                 |         |
| Experimental group | 15              | 5.18     | 4.97      | 0.27               | 0.40 | 0.09            | 2.402*  |
| Control group      | 15              | 5.15     | 5.14      | 0.21               | 0.42 | 0.10            | 0.136   |

*\*Significance at 0.05 level of confidence*

To find out difference between experimental and control group of Aerobic practice in speed. Difference in two groups-ratio was employed and the level of significance was set at 0.05. Experimental group pre and post-test mean value were 5.18, 4.97 respectively. In Control group pre and post-test were mean value was 5.15, 5.14 respectively. In experimental the obtained t-ratio 2.402 was greater than the table value of 2.15 so it is found to be significant. In control group the obtained t-ratio 0.136 was lesser than the table value of 2.15 so it was found to be insignificant.

**TABLE : F - SHOWING THE MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' VALUE OF EXPERIMENTAL AND CONTROL GROUP ON FLEXIBILITY**

| Group              | No. of Subjects | Pre-Mean | Post-Mean | Standard Deviation |      | Std. Error Mean | T-ratio |
|--------------------|-----------------|----------|-----------|--------------------|------|-----------------|---------|
|                    |                 |          |           | Pre                | Post |                 |         |
| Experimental group | 15              | 11.93    | 13.13     | 1.87               | 2.10 | 0.17            | 6.874*  |
| Control group      | 15              | 11       | 11.27     | 1.25               | 1.79 | 0.34            | 0.774   |

*\*Significance at 0.05 level of confidence*

To find out difference between experimental and control group of aerobic practice in flexibility. Difference in two group's t-ratio was employed and the level of significance was set at 0.05. Experimental group pre and post-test mean value were 11.93, 13.13 respectively. In Control group pre and post-test were mean value was 11.00, 11.27 respectively. In experimental the obtained t-ratio 6.874 was greater than the table value of 2.15 so it is found to be significant. In control group the obtained t-ratio 0.774 as lesser than the table value of 2.15 so it was found to be insignificant.

**TABLE: G SHOWING MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' VALUE OF EXPERIMENTAL AND CONTROL GROUP ON RESTING HEART RATE**

| Group              | No. of Subjects | Pre-Mean | Post-Mean | Standard Deviation |      | Std. Error Mean | T-ratio |
|--------------------|-----------------|----------|-----------|--------------------|------|-----------------|---------|
|                    |                 |          |           | Pre                | Post |                 |         |
| Experimental group | 15              | 74.13    | 72.07     | 1.36               | 1.44 | 0.38            | 5.39*   |
| Control group      | 15              | 73.60    | 73.87     | 1.18               | 1.19 | 0.45            | 0.59    |

*\*Significance at 0.05 level of confidence*

To find out difference between experimental and control group of aerobic practice in a resting heart rate. Difference in two group's t-ratio was employed and the level of significance was set at 0.05. Experimental group pre and post-test mean value were 74.13, 73.87 respectively. In Control group pre and post-test were mean value was 73.60, 72.07 respectively. In experimental the obtained t-ratio 5.39 was greater than the table value of 2.15 so it is found to be significant. In control group the obtained t-ratio 0.59 was lesser than the table value of 2.15 so it was found to be insignificant.

#### 5. DISCUSSIONS ON FINDINGS

The result of the study indicates that the experimental group namely aerobic training group and significantly improved College Women Hockey players the selected dependent variables namely Physical and Physiological

variables, when compared to the control group. It is also found that the improvement caused by aerobic training when compared to the control group.

## **6. DISCUSSIONS ON HYPOTHESIS**

It was hypothesized at the beginning of the study that there would be significant improvement on selected criterion variables such as aerobic training among college women Hockey players due to training for the experimental group as compared to the control group. The present study produced similar results. Hence, the first research hypothesis of the investigator was held true.

In the second hypothesis, it was mentioned that there would be significant difference between the experimental group and control group on selected criterion variables, the findings of the study were similar to this hypothesis. Therefore the second research hypothesis was also held true.

## **7. CONCLUSIONS**

In the light of the study undertaken certain limitations imposed by the experimental conditions, the following conclusions were arrived.

1. Speed, Flexibility, Agility, Resting heart rate, Breath holding time, were significantly improved due to the influence of aerobic training group among College Women Hockey Players
2. The Aerobic Training group improves Resting pulse rate, Breath holding time, Speed, Flexibility, Agility, greater than that of control group among college women Hockey players.

## **8. RECOMMENDATIONS**

In the following aspects, the present study either may be executed or conducted

1. It is suggested that the coaches and physical education teachers can follow this training to develop the various physical and physiological variable of common players.
2. It is recommended that this similar type of specific training package can be designed for the other games like Volleyball, Football, Basketball etc.,
3. It is suggested that the programme of similar type for various level like school, college state and national level can be prepared with various types of the large number of subjects can be taken for a detailed study.
4. The training programme can be conducted for 12 weeks
5. Similar study can be conducted on other Physical, Physiological variables.
6. This study can be conducted on different age groups.
7. Similar this study can be conducted by using different type of training for common players.
8. Similar this study can be conducted on male subjects.

## **REFERENCES**

- [1] **Guglielmo LG, Kevin R.Short1, Janet L. Bigelow1, David N. proctor3, and K.Sreekumaran Nair1** Address for reprint requests and other correspondence (2008).
- [2] **Meckel.YScott JM, Lakoski s, Mackey JR, Douglas PS, Haykowsky MJ, Jones**
- [3] **NEIL ArmstrongGrantTomkinson, Ulf Ekelund** Aerobic fitness and its relationship to sports, exercise training and habitual physical activity during youth (2011).
- [4] **Tremblay MS, Chu SY, Mureika R.** Aerobics exercise on selected physical variables retrieved no results. Sports Med. 1995 Aug;20(2):90-108.
- [5] **Zagorc Meta,** benefits from Aerobic exercise in patients with major stress and Depression, journal of sports Medicine, vol.10.No.8,P^114-117,2005.