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## **A comparative study of aerobic endurance among basketball players and volleyball players of RTM Nagpur University**

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### **Abstract**

The purpose of the present study was to study the difference in aerobic endurance among Basketball and Volleyball Players. The 40 male subjects between the age group of eighteen to twenty one year i.e., Twenty Basketball players and twenty Volleyball players of RTM Nagpur University who have taken part in the RTM Nagpur University Inter College Sports and Games during the year 2017-18 were taken for the study. The 12 Run Cooper Test were used to evaluate the aerobic endurance among Basketball and Volleyball players. The present study shows that the Volleyball players are having very good aerobic endurance compare to the Basketball players. It is recommended that Basketball and Volleyball players must be given good endurance training to play the game in efficient manner.

**Keywords:** aerobic endurance, basketball, volleyball, etc.

### **Introduction**

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 met by the body's intake. The only waste products formed are carbon-dioxide and water which are removed by sweating and breathing. Aerobic exercise is physical exercise of relatively low intensity and long duration, which depends primarily on the aerobic energy system. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy - generating process. Many types of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time. Aerobic exercise comprises innumerable forms. In general, it is performed at a moderate level of intensity over a relatively long period of time. For example, running a long distance at a moderate pace is an aerobic exercise, but sprinting is not. Playing singles tennis, with near continuous motion, is generally considered aerobic activity, while golf or two person team tennis, with brief bursts of activity punctuated by more frequent breaks, may not be predominantly aerobic. Some sports are thus inherently "aerobic", while other aerobic exercises, such as fartlek training or aerobic dance classes, are designed specifically to improve aerobic capacity and fitness.

### **Basketball**

Basketball is a game full of thrill and excitement. The game is played between two teams both having five players, and five substitutes. In this manner, team consists of 10 players, with 5 active players. One out of these players is captain who will direct his team while playing. Along with this, team can have its coach and assistance coach, however, captain of the team can act as its coach. On the court, there are two forwards, two guards and a centre, where players are required to take position. During the play, players can move from their place to another. There are two halves, each having a duration of 20 minutes. Between these two halves an interval of 10 minutes is provided to the players. However, this time can be increased or decreased as condition demands, like for high school teams duration of game is reduced to 8 minutes while for players younger than high school age, it is played 6 minute quarters. Act of throwing the ball by a player in his opponent's basket is termed as scoring the basket or field

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goal. For every field goal, both teams get two points and one point for a foul.

Two centers face each other on opposite side of division line of the centre circle in the beginning of the game. Ball is being thrown by the referee in the court at a height above the jumpers. Centre attempts to top the ball to any of his teammate. Player getting possession of ball will either opt to pass the ball to one of his teammate or to attempt to shoot the ball in the basket. Ball will remain in possession of this team till no player of this team either commits any foul or score a basket, after which ball has to be passed to defensive team's possession.

Player of opposite team can put the ball from any part of end line under his opponent basket, however, this rule keeps on changing according to level of competition. These days, game can be played between two teams each having 2 males and 3 females, or 2 females and 3 males. This is termed as co-educational players. In this case female players can guard female players and male only to male players. It is not permissible for the males to enter in area of free throw line to baseline during the play. A male player can be substituted by only male player, in the same way a female player by a female player. Referee and empire are considered the main officials of the game. To help them in working their function, a time keeper, a scorer and a 30-second operator are also present on the court. Sometimes, a technical commissioner can be present. Main duty of all the officials is to conduct the game in accordance with their rules. Right to authorize the forfeiture of a contest rests with referee.

Duty of beginning the game rests with referee, while on the jump umpire should remain at his opposite. List containing names and numbers of players taking part in the game remains with the scorer. This list also mentions the names of substitute players. Summary of points scored by each team, field goal, free throw made and missed and fouls committed remain with this scorer. To indicate the players to begin each half of the player, a signal is sound by timekeeper after which players begin the game. In accordance with rules, he keeps time of begging and stoppage of the game. Duty of 30 second operator is to operate the 30 second device or clock according to rules. Supervision the work of table officials and assistance of referee and umpire are included in responsibilities of technical commissioner.

### **Volleyball**

Volleyball, game played by two teams, usually of six players on a side, in which the players use their hands to bat a ball back and forth over a high net, trying to make the ball touch the court within the opponents' playing area before it can be returned. To prevent this a player on the opposing team bats the ball up and toward a teammate before it touches the court surface-that teammate may then volley it back across the net or bat it to a third teammate who volleys it across the net. A team is allowed only three touches of the ball before it must be returned over the net.

Volleyball is an Olympic team sport in which two teams of 6 players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules. This article focuses on competitive indoor volleyball; numerous other variations of volleyball have developed, most notably the Olympic spin-off sport beach volleyball.

The complete rules are extensive. But simply, play proceeds as follows: A player on one of the teams begins a rally by serving the ball (tossing or releasing it and then hitting it with a hand or arm), from behind the back boundary line of the court, over the net, and into the receiving team's court. The receiving team must not let the ball be grounded within their

court. They may touch the ball as many as three times. Typically, the first two touches to set up for an attack, an attempt to direct the ball back over the net in such a way that the serving team is unable to prevent it from being grounded in their court.

The rally continues, with each team allowed as many as three consecutive touches, until either (1): a team makes a kill, grounding the ball on the opponent's court and winning the rally; or (2): a team commits a fault and loses the rally. The team that wins the rally is awarded a point, and serves the ball to start the next rally. A few of the most common faults include:

- Causing the ball to touch the ground outside the opponents' court or without first passing over the net.
- Catching and throwing the ball.
- Double hit: two consecutive contacts with the ball made by the same player.
- Four consecutive contacts with the ball made by the same team.

The ball is usually played with the hands or arms, but players can legally strike or push (short contact) the ball with any part of the body.

A number of consistent techniques have evolved in volleyball, including spiking and blocking (because these plays are made above the top of the net the vertical jump is an athletic skill emphasized in the sport) as well as passing, setting, and specialized player positions and offensive and defensive structures.

### **Aim**

To find out the aerobic endurance between male basketball and male volleyball players.

### **Sample**

The sample for present study consists of 20 male Basketball players and 20 male Volleyball players of RTM Nagpur University who has taken part in the RTM Nagpur Inter College Sports and Games during the year 2017-18.

### **Tools**

12 Minute Cooper Test is used for collection of data.

### **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

This test requires the Basketball and Volleyball player to run as far as possible in 12 minutes.

- The subjects given 10 minutes for warm up.
- The assistant gives the command "GO", starts the stopwatch and athlete commences the test.
- The Technical Official keeps the athlete informed of the remaining time at the end of each lap.
- The Technical Official blows the whistle when the 12 minutes has elapsed and records the distance the athlete covered to the nearest 10 meters.

### **Results and Discussion**

The Table 1 showing the Mean, S.D., Standard Error, t-ratio of Basketball players and Volleyball players in Cooper Test.

**Table 1:** The mean, S.D., standard error, t-ratio of basketball players and volleyball players in cooper test

Results of 12 min. cooper test	N	Mean	Std. deviation	Std. error mean	t	df	Sig. (2-tailed)
Volleyball players	20	3050.00	219.71	49.13			
					1.69453	38.00	0.10
Basketball players	20	2950.00	137.71	30.79			

The Volleyball players Mean Performance is 3,050 Meters and the Basketball players mean performance is 2950 Meters. There is mean difference of 100 Meters between Basketball and Volleyball players. The performance of Volleyball players is very good comparing to Basketball players. Hence it is concluded that Volleyball players are good in aerobic endurance than Basketball players.

### Recommendations

1. It is recommended that good Aerobic Endurance must be given to Volleyball and Basketball players.
2. It is recommended that similar studies can be conducted on female sports persons.

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