

## COMPARISON OF VITAL CAPACITY BETWEEN FEMALE BASKETBALL PLAYERS AT DIFFERENT LEVELS OF COMPETITION

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### ABSTRACT

*The purpose of the study was to compare the Vital Capacity between under-19 School and Inter College Female Basketball Players. Total one hundred fifty (150) female Basketball players (75 Under-19 School and 75 Inter College Female Basketball Players) were selected as subjects. The Vital Capacity was selected for the study. The data was analyzed to find out the significant difference between two groups. 't'-test statistical technique was used to analyze the significant difference and the level of significance was set at 0.05 level. The results showed that there was significant difference between Under-19 School and Inter College Female Basketball Players for their Vital Capacity.*

**Keywords:** Vital Capacity, Forced Vital Capacity, Peak Expiratory Flow, Peak Inspiratory Flow

### INTRODUCTION:

The developing tendencies in international sports, especially in team games are identified as the increase in game tempo, tougher body game and greater variability in technique and tactics. An increased performance level can only be achieved by working and training of all major components i.e. technique, coordination, tactics, physical fitness, physiological qualities and psychological qualities. Sports physiology is the study of the long-and short-term effects of training and conditions on athletes. This specialized field of study goes hand in hand with human anatomy. Anatomy is about structure, where physiology is about function. Sports Training Principles are heavily rooted in this field. Effects of body composition, flexibility training, hydration, environmental conditions, and carbohydrate loading on athletic performance are only a few of the topics explored in this field. Exercise physiologists, physicians, and athletic trainers can apply research findings from studies to advise athletes on topics concerning nutrition, sport-related injuries, and other issues related to sports medicine.

## STATEMENT OF THE PROBLEM

“Comparison of Vital Capacity between Female Basketball Players at different levels of Competition”.

## OBJECTIVES

- I. To compare the Vital Capacity between under-19 school and college female basketball players.

## HYPOTHESES

- I. It is hypothesized that there will be significant difference between Vital Capacity of under-19 school and college female basketball players.

## DELIMITATIONS

1. The research will be delimited to female basketball players only.
2. The study will be delimited to female basketball players, who have represented their districts for under-19 school state level and colleges for their inter college level of competition.
3. The study will be delimited to female basketball players ranging between 17 to 25 years of age.
4. The study will be delimited to one hundred fifty female basketball players (75 inter college players and 75 under-19 school players).
5. The study will be delimited to Vital capacity only. These parameters are:  
 Vital Capacity:
  - i. FVC (Forced Expiratory Vital Capacity)
  - ii. PEF (Peak Expiratory Flow)
  - iii. PIF (Peak Inspiratory Flow)

## PROCEDURE AND METHODOLOGY

### SELECTION OF SUBJECTS

For the purpose of the study 150 female basketball players were selected as subjects (75 under-19 school and 75 inter college female basketball players).

**SELECTION OF VARIABLES:**

On the basis of available literature in, the following parameters were selected for this study.

- i. **Vital capacity:** This variable was assessed by Spirometer with computer (spiroexcel) and measured the following:
  - a. Forced Vital Capacity (FVC)
  - b. Peak Expiratory Flow (PEF)
  - c. Peak Inspiratory Flow (PIF)

**STATISTICAL ANALYSIS OF DATA**

With regard to purpose of the study Mean, Standard Deviation and 't' test were calculated. In order to check the significance, level of significance was set at 0.05.

**ANALYSIS AND RESULTS****I. TABLES AND FIGURES SHOWING VITAL CAPACITY OF UNDER-19 SCHOOL AND INTER COLLEGE FEMALE BASKETBALL PLAYERS.****i. VITAL CAPACITY****a. Forced Vital Capacity (FVC)**

TABLE –1

**COMPARISON OF FORCED VITAL CAPACITY (FVC) BETWEEN UNDER-19  
SCHOOL LEVEL AND INTER COLLEGE FEMALE BASKETBALL PLAYERS**

Group	Sample	Mean	Standard Deviation	t-value
Under-19 School level female Basketball Players	75	3.2976	0.6641	4.6392
Inter College female Basketball Players	75	3.780	0.6081	

Table 't'-value at .05(148)= 1.97

FIGURE –1

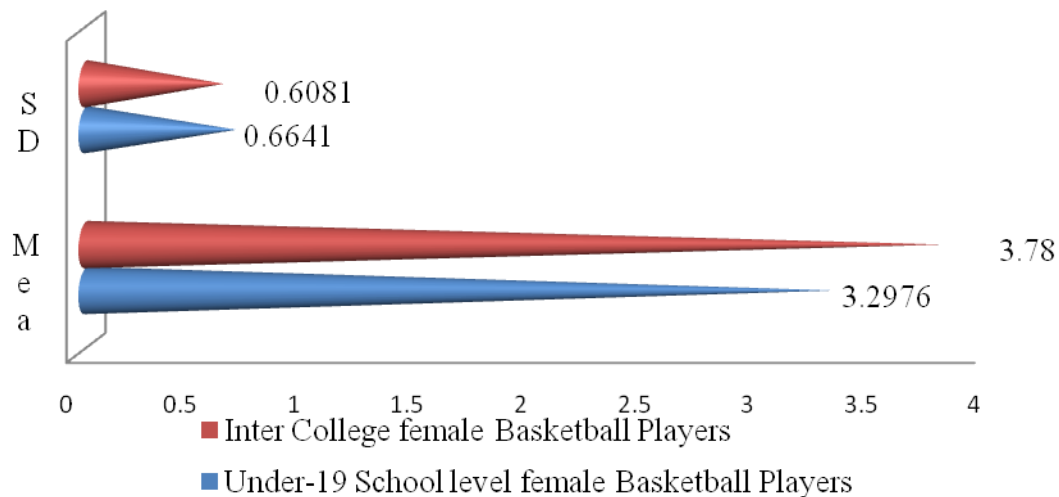
**MEAN AND STANDARD DEVIATION OF FORCED VITAL CAPACITY (FVC) OF  
UNDER-19 SCHOOL AND INTER COLLEGE FEMALE BASKETBALL PLAYERS**


Table & figure 1 shows that the Mean and Standard Deviation value with regard to Under-19 School level female Basketball Players is 3.2976 and 0.6641 whereas in the case of Inter College female Basketball Players is 3.780 and 0.6081 respectively. The calculated t-value (4.6392) which is more than tabulated t-value (1.97) at .05 level. So, it indicates that there has been a significant difference between Under-19 School and Inter College Basketball female Players for their Forced Vital Capacity (FVC) variable.

### b. Peak Expiratory Flow (PEF)

**TABLE –2**

**COMPARISON OF PEAK EXPIRATORY FLOW (PEF) BETWEEN UNDER-19 SCHOOL LEVEL AND INTER COLLEGE FEMALE BASKETBALL PLAYERS**

Group	Sample	Mean	Standard Deviation	t-value
Under-19 School level female Basketball Players	75	2.8861	0.6766	2.6770
Inter College female Basketball Players	75	3.1680	0.6113	

Table 't'-value at .05(148)=1.97

**FIGURE –2**

**MEAN AND STANDARD DEVIATION OF PEAK EXPIRATORY FLOW (PEF) OF UNDER-19 SCHOOL AND INTER COLLEGE FEMALE BASKETBALL PLAYERS**

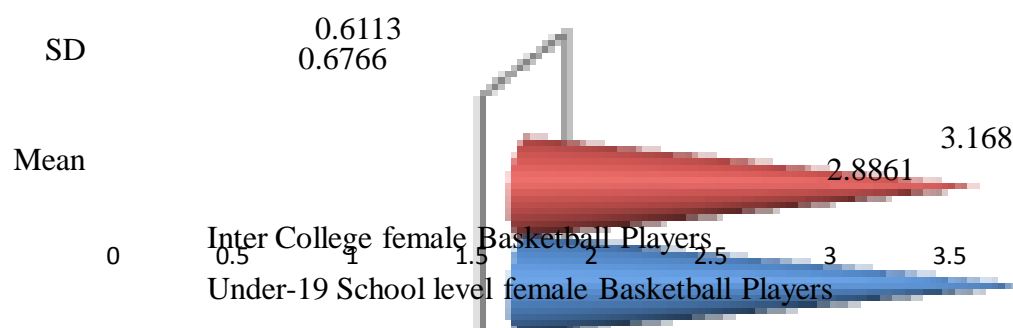


Table & figure 4.2 illustrates that the Mean and Standard Deviation values with regard to Under-19 School level female Basketball Players is 2.8861 and 0.6766 whereas in the case of Inter College female Basketball Players is 3.1680 and 0.6113 respectively. So, it indicates that there has been a significant difference between Under-19 School and Inter College female Basketball Players for their Peak Expiratory Flow (PEF). The calculated t-value (2.6770) is more than tabulated t-value (1.97) at .05 level.

### c. Peak Inspiratory Flow (PIF)

**TABLE –3**

**COMPARISON OF PEAK INSPIRATORY FLOW (PIF) BETWEEN UNDER-19 SCHOOL LEVEL AND INTER COLLEGE FEMALE BASKETBALL PLAYERS**

Group	Sample	Mean	Standard Deviation	t-value
Under-19 School level female Basketball Players	75	108.5581	20.6825	1.1836
Inter College female Basketball Players	75	112.5283	20.3964	

**Table ‘t’-value at .05(148)=1.97**

Table & figure 4.3 demonstrates that the Mean and Standard Deviation values of Peak Inspiratory Flow (PIF) with regard to Under-19 School level female Basketball Players is 108.5581 and 20.6825 whereas in the case of Inter College female Basketball Players is 112.5283 and 20.3964 respectively. The calculated t-value (1.1836) which is less than tabulated t-value (1.97). So, it indicates that there has been an insignificant difference between Under-19 School and Inter College female Basketball Players.

### DISCUSSION:

In this the study descriptive statistic such as mean and standard deviation and ‘t’-test were calculated. The study indicates that there has been a significant difference between Under-19

School and Inter College Basketball female Players for their Forced Vital Capacity (FVC) variable and Peak Expiratory Flow (PEF). But the study also shows that there has been an insignificant difference between Under-19 School and Inter College female Basketball Players for their Peak Inspiratory Flow (PIF). The reasons could be due to their training program and schedule.

### CONCLUSION:

1. The results of the investigation strongly confirm that, significant differences were observed between Under-19 School and Inter-College level female Basketball players for their Forced vital capacity parameter.
2. The result authenticated that, there was significant differences between Under-19 School and Inter-College level female Basketball players for their Peak expiratory flow.
3. The results substantiate that, insignificant differences were observed between Under-19 School and Inter-College level female Basketball players for their Players for Peak Inspiratory Flow.

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