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A Comparative Study on Physical Fitness Performance of School Level and College Level Basketball Players

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Abstract

In the research work is to examine physical fitness of basketball female players of school age is 14 to 17 and college level whose age is between 17 to 21. The components are Explosive strength, Endurance, flexibility, Speed and Agility among school and college female Basketball players. To fulfill the goal, examine 20 female Basketball players are selected. The age of the selected players ranged from 14 to 21 years. To analyze the records t-test became used to investigate the records and the significant different between college and school level female basketball players. Therefore, the school level female basketball players have performed slightly better than their college level female basketball players.

Keywords: Explosive strength, speed, endurance, agility, flexibility.

Introduction

The concept of physical fitness is as antique as human type. All through the records of mankind physical fitness has been considered a critical detail of ordinary life. The ancient people were specially structured upon their person power and power for physical survival. This worried mastery of a few primary talent like electricity, speed, patience, agility for walking, leaping, climbing and other abilities employed in attempting to find their livings. Always the word fitness health suggests the potential of an animal or a human to work and play with a most degree of physical performance and to be organized to meet unexpected threat or destruction. The present day medical age, in every subject of human endeavour systematic, goal and scientific procedures are accompanied according with the standards primarily based on experience, below-standing and application of medical knowledge. The field of games and sports activities has been made viable because of research, experimentation and scientific know-how in video games and sports activities.

Objective of the Study

The proposed objectives of the present research were follows.

1. To find out the explosive strength of female basketball players.
2. To find out the speed of female basketball players.
3. To measure the level of endurance of female basketball players.
4. To measure the level of agility of female basketball players.
5. To find out the flexibility of female basketball players.

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Significance of the Study

- The study will also make addition to existing knowledge of physical education and sports.
- The research will encourage the female players to practice basketball to improve speed, explosive strength, agility, endurance and flexibility.
- It helps the coaches and teachers to select the students according to their fitness components towards specific game.

Hypothesis

H1: Basketball players may have better strength.
H2: Basketball players may have more speed.
H0: H0: There is no difference in agility of basketball players.

Limitation

- The hereditary and potential of students were not under the control of researcher.
- This study was limited to climate condition.
- This study was limited to Diet habit, health and style of day to day living of the subject.

Delimitation

- The study was delimited to female basketball players only.
- Only 20 female students were considered.

- The age of the subjects were ranged from school level is 14 to 17 years and college level is 17 to 21 years.
- The physical fitness components i.e. speed, explosive strength, agility, endurance and flexibility are considered for present test.

Methods and Procedure

Selection of the Subjects

The study was carried out on 20 subjects of college and school level female basketball players. The selection of the subject was made on the basis of random sampling from player's populations of college and school level female players. Those players were selected for conducting the study whose age between 14-21 years. For these study 20 basketballs female players are selected randomly as shown in Table 1.2.

Design of the Study

The researcher is undertaken this descriptive study to compare the fitness variables speed, explosive strength, agility, endurance and flexibility of female basketball players. In this work, describes different physical educationists. The data collected by conducting speed test, agility test and explosive strength test, endurance test and flexibility test on the subjects.

Selection of the Variable

The purpose is to compare the selected fitness components of female basketball players, therefore the following variables have been selected after consulting experts and referring various literatures like speed, agility, explosive strength, endurance, and flexibility.

Analysis and Interpretation of Data

The data was collected by use of test like standing broad jump, 50 meter dash, harward step test, shuttle run, sit and reach test. The data collected from the selected female basketball players and analyzed to find out any significance difference in mean of female basketball Players has been presented in Table and Figures with the different selected variables. The data was analyzed and compared with the help of statistical procedure in which arithmetic mean, standard deviation, standard error of deviation and t-test used to compare the data. The level of significance was chosen to be 0.05. Results and Discussion For the present study, the mean, variance, standard deviation, t test were applied to analyze the data. The mean, variance and standard deviation of the selected dimensions of college and school level female basketball players were computed. Its results have been depicted in table 1.2. Table 2 depicts that the mean and standard deviation values of physical fitness of college and school level female players.

Table 1
Selected Variables and Measures

S. No.	Variables	Criteria measures
1	Explosive Strength	Standing Broad Jump
2	Speed	50 Meter Dash
3	Endurance	Harward Step Test
4	Agility	Shuttle Run
5	Flexibility	Sit and Reach Test

From the table 1 shows the mean, variance, standard deviation and t test values for explosive strength, speed, endurance, agility and flexibility variable are computed for college and school level female basketball players.

Table 2
Comparative Analysis School level Female Basketball Players

Number of Samples	Age	Height	Weight	Explosive Strength Standing Broad Jump (in mtrs)	Speed (50 mtrs Dash in sec)	Endurance (Harward Step Test)	Agility (Shuttle Run 30 sec)	Flexibility (Sit and Reach Test)
1	15	158	52	1.39	9.18	40	07	1.20
2	17	160	53	1.43	9.06	52	11	1.11
3	14	156	49	1.55	9.15	46	09	1.10
4	14	155	48	1.59	9.02	38	12	1.12
5	14	154	47	1.56	9.20	46	08	1.00
6	14	156	49	1.58	9.08	31	14	1.21
7	17	159	51	1.62	8.89	43	12	1.25
8	16	157	55	1.60	8.24	50	11	1.10
9	15	160	53	1.53	9.25	56	08	1.05
10	15	162	59	1.51	9.10	51	11	1.06

11	14	168	60	1.57	9.10	60	13	1.10
12	17	170	66	1.63	9.08	43	12	1.10
13	16	165	63	1.58	9.13	48	06	1.07
14	16	169	61	1.50	9.22	62	06	1.00
15	15	164	56	1.48	9.18	61	12	1.10
16	15	161	53	1.46	9.20	58	08	1.25
17	14	166	58	1.61	9.12	40	09	1.05
18	15	160	52	1.46	9.17	43	12	1.06
19	14	159	51	1.35	9.23	51	06	1.10
20	15	163	55	1.40	9.18	59	10	1.06
Number of Samples	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Average	**14.95**	**161.1**	**54.55**	**1.52**	**9.08**	**48.90**	**9.85**	**1.10**
Standard Deviation	**1.28**	**4.70**	**5.21**	**0.83**	**0.21**	**8.63**	**2.49**	**0.07**
Variance	**1.63**	**22.09**	**27.10**	**0.006**	**0.046**	**74.51**	**6.23**	**0.005**
T test	**2.079**		**2.085**	**2.093**	**2.080**	**2.042**	**2.059**	**2.100**

From the table 2 shows that height of 20 numbers of samples average is 14.95, variance 1.63 and standard deviation is 1.28 and t test value is 2.079 respectively for school level female basketball players are calculated.

Formula for Average

The following is the formula for the average as below

Average=Sum of Observations/Number of observations

Example:

Average for Age = 299/20 = 14.95
Average for Height= 3222/20 = 161.1
Average for Weight= 1091/20 = 54.55

Formula for Standard Deviation

The following is the formula for the S.D as below

$$s = \sqrt{\frac{\sum (X - M)^2}{n}}$$

Where

Σ = Sum of
X = Individual score
M = Average of all scores
n = Sample size (Number of scores)

Example

Age (X)	**Average (M)**	**(X-M)**	**$(X-M)^2$**
15	14.95	15-14.95	$(0.05)^2$
17	14.95	17-14.95	$(2.05)^2$
14	14.95	14-14.95	$(-0.95)^2$

Formula for Variance

The following is the formula for the variance as below

$$\text{Variance} = (\text{S.D})^2$$

Example:

Variance = (1.28)2 =1.63

Formula for t test

The following is the formula for the t test as below

$$t = \frac{M_x - M_y}{\sqrt{\frac{S_{x^2}}{n_1} + \frac{S_{y^2}}{n_2}}}$$

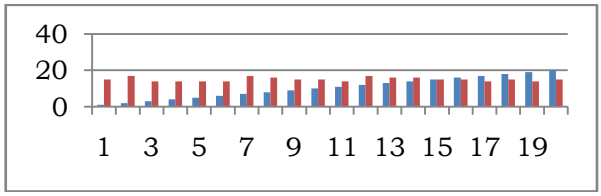
Example:

Height (X)	**$(X-M_x)^2$**	**Weight (Y)**	**$(Y-M_y)^2$**
158	$(158-158)^2=0$	52	$(52-51.33)^2=(0.67)^2=0.4489$
160	$(160-158)^2=(2)^2=4$	53	$(53-51.33)^2=(1.67)^2=2.7889$
156	$(158-158)^2=(-2)^2=4$	49	$(49-51.33)^2=(2.33)^2=5.4289$
X=474	$(X-M_x)^2=8$	Y=154	$(Y-M_y)^2=5.4289$
M_x=474/3=158	$Sx^2=4$	M_y=154/3=51.33	Sy^2=4.3335

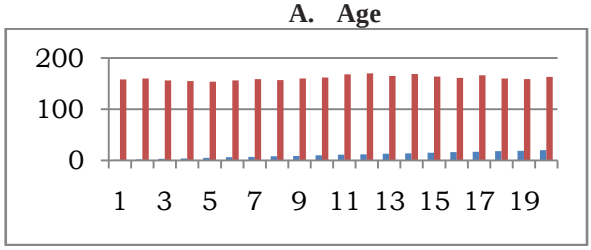
The Figure I shows the pictorial representation of the performance evaluated. By analyzing the samples,

average, standard deviation and variance it produced the best results.

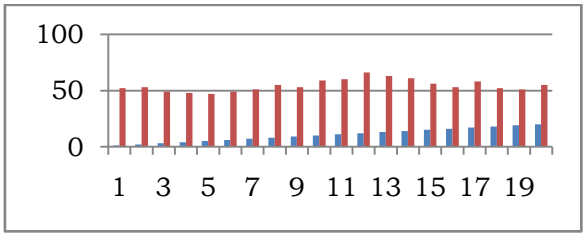
Figure I
Comparison Chart School level Female Basketball Players



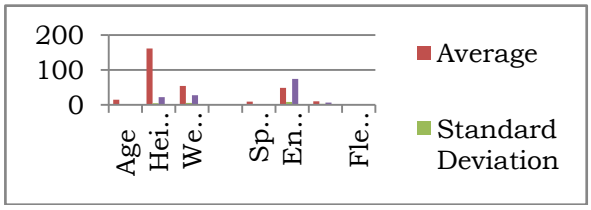
A. Age



B. Height



C. Weight



D. Comparison Values of all Parameters

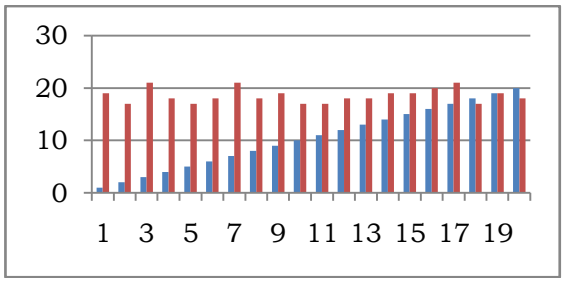
Table 3
Comparative Analysis College level Female Basketball Players

Number of Samples	Age	Height	Weight	Explosive Strength Standing Broad Jump (in mtrs)	Speed (50 mtrs Dash in sec)	Endurance (Harward Step Test)	Agility (Shuttle Run 30 sec)	Flexibility (Sit and Reach Test)
1	19	170	61	2.02	9.06	64	11	1.05
2	17	163	55	1.89	9.12	54	09	1.10
3	21	174	65	2.01	9.08	57	10	1.10
4	18	167	59	2.00	9.11	52	09	1.05
5	17	159	51	1.83	9.21	55	12	1.00
6	18	165	63	1.81	9.16	60	12	1.21
7	21	174	55	2.00	8.24	52	13	1.06
8	18	169	61	1.81	9.19	35	10	1.00
9	19	171	62	1.95	9.05	58	11	1.10
10	17	162	59	1.95	9.18	70	09	1.05
11	17	164	56	1.90	9.17	62	12	1.05
12	18	166	58	1.80	9.11	58	08	1.10
13	18	168	60	2.06	8.31	58	14	1.11
14	19	173	64	1.79	9.20	70	10	0.80
15	19	172	63	2.05	8.12	60	15	1.25
16	20	176	67	1.79	9.20	34	11	1.26
17	21	178	69	1.70	9.16	38	12	1.08
18	17	160	52	1.19	9.15	57	11	1.11
19	19	175	66	1.70	9.15	62	14	1.25
20	18	162	59	1.74	9.20	55	11	1.10
Number of Samples	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Average	**18.55**	**168.40**	**60.25**	**1.84**	**9.00**	**55.55**	**11.20**	**1.09**
Standard	**1.36**	**5.66**	**4.85**	**0.19**	**0.34**	**9.88**	**1.85**	**0.10**

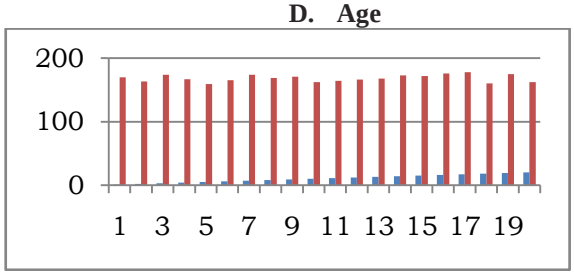
Deviation								
Variance	1.84	32.04	23.57	0.03	0.11	97.73	3.43	0.01
T test	2.085		2.030	2.086	2.069	2.055	2.068	2.100

From the table 3 shows that height of 20 numbers of samples average is 18.55, variance 1.84 and standard deviation is 1.36 and t test value is 2.085 respectively for school level female basketball players are calculated.

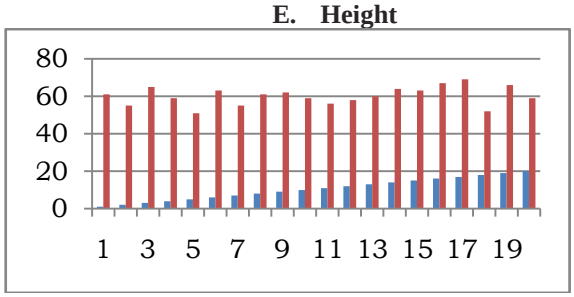
Figure II
Comparison Chart College level Female Basketball Players



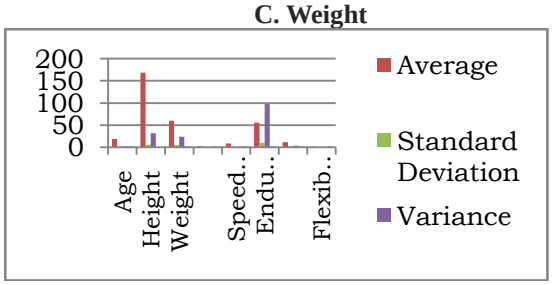
D. Age



E. Height



C. Weight



D. Comparison Values of all Parameters

The Figure II shows the pictorial representation of the performance evaluated. By analyzing the samples, average, standard deviation and variance is calculated for college level female basketball players.

Comparison of Performance

The comparison of performance between school level female basketball players and college level female basketball players for example two performances are considered for this research work they are i.Dribbling and ii.Shooting

Dribbling Skill

Dribbling skill involves, speed, control on the ball and endurance.

Step 1: First ball control was tested for school and college level female basketball players.

Step 2: with ball full court dribbling was given separately for both group to test the speed, ball control and endurance.

Step 3: The school level female basketball players performing better than college level female basketball players due to regular practice.

Shooting

The two type of shooting were tested for school level female basketball players and college level female basketball players. They are

Type I: Set Shot

Type II: Jump Shot

For each type of shooting per students five minutes were given and conversion were counted as performance. In this test also school level female basketball players performing slightly better than college level female basketball players. Based on the analysis of performance of both dribbling and shooting test the school level female basketball players are performing better than college level female basketball players.

Reason

- School level female basketball players practice regularly.
- College level female basketball players are irregular to practice.
- School level female basketball players come to practice on time daily.
- College level female basketball players are not proper to practice on time daily.
- Percentage of involve in the skill or game toward school level female basketball players were 100%.
- Percentage of involve in the skill or game toward college level female basketball players were 60 to 70% only.
- School level female basketball players are eager to learn, improve and masterised skill to achieve the tournament to get placed in college.
- College level female basketball players are not eager to learn, improve and masterised skill. They want to maintain the same performance (or) decreased.

- Hard effect was made by school level female basketball players but not in college level female basketball players. From the analysis shows why school level female basketball players are better than the college level female basketball players.

Conclusion

The female basketball players have speed, agility, explosive strength, endurance, and flexibility. Therefore, the school level female basketball players have performed slightly better than their college level female basketball players.

The following recommendations were made in the light of this investigation for further research:

- On the basis of the findings it can be recommended that some more additional motor fitness variables can also be included for the further study.
- Similar studies in the line of present study may be undertaken on larger samples of difference age groups in future.
- The present study recommends the use of these finding to sports coaches, physical education teachers and sports scientists for training and assisting in preparing students for competitions.

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