

## **A Comparative Study on Physical Variables of Girls Volleyball Players of Residential and Non Residential School of Madhya Pradesh**

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### **Abstract**

The purpose of the study to investigate the difference In Selected Physical variables, among female Players of Residential and Non-residential schools of M.P. To achieve this purpose of the study, (hundred) female from Gurukul Senior Secondary school Rewa Madhya Pradesh, Jawahar Navodaya Vidyalaya Sirmaur M.P., Eklavya Model Residential school Jabalpur. Sanskaar Valley school Bhopal M.P., Christ Jyoti HR Sec school Satna M.P., Chinmaya Vidyalayas Satna M.P were selected as subject for both the groups for residential and non- residential among them 50 for each group. The age of subjects ranged between 13 to 19 year .Suitable tests and tools were used to collect the data. All the directions with regard to the collection of data were given by the researcher himself. Independent-Samples 't' test was used for main objectives of the study to find out difference In Selected Physical variables, among female Players of Residential and Non-residential schools of M.P. In case of Physical variables All the variables(Speed, Explosive strength, Agility, Flexibility) showed significance difference except Endurance.

**KEYWORDS:** - Residential, Speed, Explosive strength.

### **Introduction**

To be an exceptional volleyball player today athletes not only must be in excellent shape, they must be in volleyball shape. A volleyball shape player is one who has a 35 inch vertical leaping ability and can run for miles without tiring. Volleyball players must be able to jump the same height near the end of a long and grueling match as at the beginning. They must have energy to perform physical feats while sustaining their level of strength power and agility. The content of volleyball training includes all physical activity, all purposeful psychological measures and all other intentional influences of the outer and inner environment assigned to the players individually and collectively as a team which supports, develops, improves or perfects volleyball performance as a whole or any of its respective parts.

Another important aspects is the necessity of utilizing game combination throughout the whole process of teaching, learning and perfecting. The reason for this feature is based on the rules of the game which directly require players to cooperate thus significantly reducing individualism within the game.

All of this section has their theoretical and practical parts. While the practical is composed mainly of physical exercises inserted into training, theory stresses the reasons and supposed effects of their use, although physical exercises are not the only reasons, they are, and will remain, the principal ones among the stimuli of adaptation utilized in volleyball training as the content of all its organizational elements.

Research work especially in women volleyball was needed, Wilmore (2008) said "Motor ability of boys & girls generally increases with age for first 17 Years, although girls tend to plateau at about the age of the puberty for most test items tested. these improvements result primarily from development of the neuromuscular and endocrine system and secondarily from the increased activity. The plateaus observed in the girls at puberty is likely explained by three factors first, as mentioned earlier the increase in estrogen levels at puberty or in the estrogen ratio leads to increased fat deposition. Performance tends to decrease as fat increases. Second girls have less muscle mass. In training a women's team, the coach must always take women's physical and physiological characteristics into consideration. Their musculature is more flexible and plastic. on the basis of increased strength and sensitivity of joints tissues, we must pay particular attention to improving the muscular strength and explosive power of those parts constantly exercised in the game, such as the loin and abdomen, the thighs and calves, the ankles and archer, and the shoulders, per cams, wrists and figures.

Physical characteristics have been considered pre-requisite for players to reach the top level performance in the game of volleyball. The height of the players is a special advantage in this game. Powerful legs help a great deal in achieving good jump during spiking. Arm strength gives greater force to kill the ball. Speed and agility are essential to run fast and change direction quickly which is required most often in a game of volley ball. Balance helps to control the body and take position to receive the ball. Flexibility plays a vital role in performance of coordinated movements and provides the base for the development of certain others components like strength, speed, agility etc

## **Methodology**

**Selection of subjects:** - To achieve this purpose of the study, (hundred) female from Gurukul Senior Secondary school Rewa Madhya Pradesh.

Jawahar Navodaya Vidyalays Sirmaur M.P., Eklavya Model Residential school Jabalpur. Sanskaar Valley school Bhopal M.P., Christ Jyoti HR Sec school Satna M.P., Chinmaya Vidyalayas Satna M.P were selected as subject for both the groups for residential and non- residential among them 50 for each group. The age of subjects ranged between 13 to 19 years.

**Selection of variables:-**For the analysis of study following variables were selected:

### **Physical Variables-**

- 1) Speed
- 2) Explosive Strength

- 3) Agility
- 4) Endurance
- 5) Flexibility

**Criterion measures:** -The criterion measures adopted for this study were as follow s:-

1. Speed was measured by 20 mtr sprint to measure athlete's speed of acceleration in very short distance.
2. 50 yard dash to measure athlete's speed of acceleration for longer distance.
3. Standing Board Jump to measure the leg strength horizontally.
4. Sargent jump in vertical jump to measure the leg strength vertically.
5. Burpee test to measure the rapidly by which body position can be changed.
6. Agility was measured by 10 mtr shuttle run and the time taken to shuttle a distance of ten meters four times and recorded to the nearest 1/10<sup>th</sup>.
7. 600 yard Run of walls to measure cardiovascular efficiency.
8. Flexibility was measured by sit and reach test recorded to the nearest centimeter.
9. Dynamic flexibility was measured as the ability to make repeated.

**Statistical analysis:** - For the purpose of the study, Independent-Samples ‘t’ test was used and the level of significance was set at 0.05.

## RESULTS

This is comprised of the results of the statistical analysis of the data. For the purpose of the study the researcher had selected five physical variables to compare between residential and non-residential school volleyball players of Madhya Pradesh. To compare two different groups (i.e. residential and non-residential) the researcher used Independent-Samples T test by means of SPSS software. The level of significant was set at 0.05.

**Table 1**

### Mean Speed

**t-Table of the variable Speed with F value for Levine’s test**

Groups	Means	Std. Deviation	Mean Difference	Std. Error of mean difference	t value	p value	F value	p value
Residential	7.8854	0.68168	-0.4024	0.13002	-	0.003	0.536	0.466

					3.095			
Non-Residential	8.2878	0.61691						

The Table 1 describes the results of the Independent-Samples T test. From the results of the Table 1, the following interpretation can be drawn:

- One of the assumptions to use Independent-Samples T test is that the variance of the group must be equal. To check the equality of variance, Levine’s test was used and it is found that the F (0.536) value for Levine’s test is not significant ( $p=0.466$ ,  $p>0.05$ ). Therefore the researcher fails to reject the null hypothesis of equality of variance and it is concluded that the variances among the groups are equal and it fulfils the assumption.
- The mean Speed of Residential School (7.8854) is better than the mean speed of Non-Residential School (8.2878). For this mean difference (-0.4024), the t-Value is significant as ( $p=0.003$ ,  $p<0.05$ ) and therefore it can be concluded that the difference in Speed of Residential and Non-Residential School volleyball players are significant.

**Table 2**

**Mean Explosive Strength**

**t-Table of the variable Explosive Strength with F value for Levene’s test**

Groups	Means	Std. Deviation	Mean Difference	Std. Error of mean difference	t value	p value	F value	p value
Residential	182.22	22.38193	11.06	4.70351	2.351	0.021	0.098	0.754
Non-Residential	171.16	24.60078						

The Table 2 describes the results of the Independent-Samples T test. From the results of the Table 1, the following interpretation can be drawn:

- One of the assumptions to use Independent-Samples T test is that the variance of the group must be equal. To check the equality of variance, Levine’s test was used and it is found that the F (0.098) value for Levine’s test is not significant ( $p=0.754$ ,  $p>0.05$ ). Therefore the researcher fails to reject the null hypothesis of equality of variance and it is concluded that the variances among the groups are equal and it fulfils the assumption.
- The mean Explosive Strength of Residential School (182.22) is better than the mean Explosive Strength of Non-Residential School (171.16). For this mean difference (11.06), the t-value (1.594) is significant as it ( $p=0.021$ ,  $p>0.05$ ) and therefore it can be concluded that the difference in Explosive

Strength of residential and non-residential school volleyball players are significant

**Table 3**

**Mean Agility**

**t-Table of the variable Agility with F value for Levene's test**

Groups	Means	Std. Deviation	Mean Difference	Std. Error of mean difference	t value	p value	F value	p value
Residential	7.0925	0.67566	-0.36150	0.14916	-2.424	0.017	2.384	0.126
Non-Residential	7.424	0.80986						

The Table 3 describes the results of the Independent-Samples T test. From the results of the Table 3, the following interpretation can be drawn:

- One of the assumptions to use Independent-Samples t-test is that the variance of the group must be equal. To check the equality of variance, Levene's test was used and it is found that the F (2.384) value for Levene's test is not significant ( $p=0.126$ ,  $p>0.05$ ). Therefore the researcher fails to reject the null hypothesis of equality of variance and it is concluded that the variances among the groups are equal and it fulfils the assumption.
- The mean Agility of Residential School (7.0925) is better than the mean Agility of Non-Residential School (7.424). For this mean difference (-0.36150), the t-statistics (-2.424) is significant ( $p=0.017$ ,  $p<0.05$ ) and therefore it can be concluded that the difference in Agility of residential and non-residential school volleyball players are significant.

**Table 4**

**Mean Endurance**

**t-Table of the variable Endurance with F value for Levene's test**

Groups	Means	Std. Deviation	Mean Difference	Std. Error of mean difference	t value	p value	F value	p value
Residential	3.2084	0.46352	-0.4280	0.9075	-2.472	0.638	0.051	0.822
Non-Residential	3.2512	0.44402						

The Table 4 describes the results of the Independent-Samples t-test. From the results of the Table 4, the following interpretation can be drawn:

- One of the assumptions to use Independent-Samples t-test is that the variance of the group must be equal. To check the equality of variance,

Levene’s test was used and it is found that the F (0.051) value for Levene’s test is not significant ( $p=0.822$ ,  $p>0.05$ ). Therefore the researcher fails to reject the null hypothesis of equality of variance and it is concluded that the variances among the groups are equal and it fulfils the assumption.

- The mean Endurance of Residential School (3.2084) is better than the mean Endurance of Non-Residential School (3.2512). For this mean difference (-0.04280), the t-statistics (-0.472) is not significant ( $p=0.638$ ,  $p>0.05$ ) and therefore it can be concluded that the difference in Endurance of residential and non-residential school volleyball players are not significant.

**Table 5**

**Mean Flexibility**

**t-Table of the variable Flexibility with F value for Levene’s test**

Groups	Means	Std. Deviation	Mean Difference	Std. Error of mean difference	t value	p value	F value	p value
Residential	13.20	1.87355	-0.84	0.36249	-2.317	0.023	1.425	0.975
Non-Residential	14.04	1.74917						

The Table 5 describes the results of the Independent-Samples T test. From the results of the Table 5, the following interpretation can be drawn:

- One of the assumptions to use Independent-Samples T test is that the variance of the group must be equal. To check the equality of variance, Levene’s test was used and it is found that the F (1.425) value for Levene’s test is not significant ( $p=0.975$ ,  $p>0.05$ ). Therefore the researcher fails to reject the null hypothesis of equality of variance and it is concluded that the variances among the groups are equal and it fulfils the assumption.
- The mean Flexibility of Non-Residential School (14.04) is better than the mean Flexibility of Residential School (13.20). For this mean difference (-0.84), the t-statistics (-2.317) is significant ( $p=0.023$ ,  $p<0.05$ ) and therefore it can be concluded that the difference in Flexibility of residential and non-residential school volleyball players are significant.
- Further the mean difference (-0.84) describes that the Residential School volleyball players are having lower flexibility compared to Non-Residential School volleyball players

**Discussion**

Physical characteristics have been considered pre-requisite for players to reach the top level performance in the game of volleyball. The height of the players is a special advantage in this game. Powerful legs help a great deal in achieving good jump during

spiking. Arm strength gives greater force to kill the ball. Speed and agility are essential to run fast and change direction quickly which is required most often in a game of volley ball. Balance helps to control the body and take position to receive the ball. Flexibility plays a vital role in performance of coordinated movements and provides the base for the development of certain others components like strength, speed, agility etc.

The purpose of the study to investigate the difference In Selected Physical Variables (Speed, Explosive Strength, Agility, Endurance, Flexibility) among female Players of Residential and Non-residential schools of M.P.

The analysis of data reveals that In case of Physical variables All the variables(Speed, Explosive strength, Agility, Flexibility) showed significance difference except Endurance. Thus it may be concluded that players does not getting proper practice and time to play that's why they are lacking.

### **Conclusions**

Based on the analysis and within the limitation of present study following conclusion were drawn

- 1) In case of Physical variables All the variables(Speed, Explosive strength, Agility, Flexibility) showed significance difference except Endurance

### **References**

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