

Effects of Fundamental and Movement Pattern Program on Basic Volleyball Skills of Beginner Boys' Volleyball Players from Clara Global School

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ABSTRACT

The main purpose of this study was to study the effect of fundamental and movement pattern program on the basic volleyball skill attainment of boy's age 12 to 13 yrs. from Clara Global School, Pune. In this study the boys selected for the study were selected using Non probability convenience sampling. 30 boys were selected and were divided into two equal groups where one group was an experimental group while other was control group. Training program for Fundamental and movement pattern program was specially designed for the experimental group and along with the program the basic volleyball skills were administered on experimental group. The control group was trained for only basic volleyball skills only. The training program was administered for 6 weeks duration on both the groups. A rating scale was designed to check the effect of fundamental and movement pattern program on the basic volleyball skill attainment of boy's after evaluating through rating scale the students were given 1 to 5 points for 10 sub skill of basic volleyball skill each i. e. service , underarm , overarm. The total points were calculated out of 50.

Keywords : Fundamental and movement pattern program, Basic volleyball skill, Service, Under arm pass, Over arm pass Rating scale

Introduction

Volleyball is one of the most practiced sports in the world. Many people, especially children, want to learn the volleyball techniques to better play and enjoy the game.

However, to play at a higher level many stages must be reached and several coaches have difficulties understanding how to better develop players during the years of preparation. This study is a suggestion of training ideas, which divide the evolution of volleyball players in the initial stage. Objectives are suggested in each phase that the player must reach to be prepared to carry through the transition for the next stage and to be conditioned to act in competitions of adult level or higher level. (Müller, A. J.) (2009) When learning volleyball skills one has to stick to methodological principles of complex motor skills acquisition after reaching a suitable level of simple motor skills (Delaš Kalinski, Miletić & Božanić, 2011). The acquisition of skills which aren't in accordance with the current abilities of the one who learns could result in failure. In that matter, each volleyball skill has a potentiality of vertical and horizontal progression which makes volleyball one of the most attractive sports nowadays. In this sport, one can distinguish a path from natural movement to very complex

movement . The wide range of movements and positions makes it possible for children to develop quality fundamentals of sensory and motor pathways and make a positive stimulus on their psychosomatic status. Highly developed motor abilities and large movement skills can enable better every day functioning. During that time, motor learning needs to be perceived as a process of gradual skills acquisition. This process starts with first incorrect, clumsy and slow attempts, over basic structures acquisition, to superior performance of skills in different circumstances. Fundamental movement skills (FMS) are skills that enable children to interact and explore their environment. Besides being fundamental and irreplaceable in most human abilities and features, these movement structures make a firm base for the development of more advanced and complex movement skills (Gallahue & Donnelly, 2003; Payne & Isaacs, (2002.). Fundamental movement skills are the foundation movements, or precursor patterns, to more specialized, complex skills in game and sports. Without competence in locomotor skills, non locomotor skills and manipulative skills such as running, jumping and hopping, and object control skills such as kicking, catching, and throwing, children are less likely to access the range of physical activity. Thus, an important part of a comprehensive physical education program is instruction in fundamental motor skills. Fundamental motor skills, such as the run, leap, catch and overhand throw, form the building blocks which underpin the learning of more complicated sport and movement skills common to the community. Without fundamental motor skill competence, students are less likely to learn related sport and movement skills. Fundamental motor skill competence has been shown to influence students in many ways. Students who have achieved fundamental motor skill competence have been found to successfully participate in a range of sports and movement activities and maintain involvement during childhood and adolescence.

Methodology

Experimental research methodology is a scientific approach used to study cause-and-effect relationships between variables by manipulating one variable (the independent variable) while controlling all other variables. Experimental design create a set of procedures to systematically test a hypothesis.

This study is an Experimental research design where the researcher is studying the cause and effect of Fundamental and movement pattern program on basic volleyball skill acquisition of boy's age 12 to 13 yrs. The boys of age 12 to 13 yrs. of Clara Global School, Pune Maharashtra was the population for the study. The sampling technique used in this research study was Non- probability Convenience Sampling.

Total 30 students were selected out of which two equal groups were formed. The groups were made using Non- probability Convenience Sampling. The training program for Fundamental and movement pattern and basic volleyball skills i. e. service, underarm pass and overarm pass was administered one the group and the other group (Control group) was trained for only basic volleyball skills.

The training program was administered for 6 weeks duration on both the groups. Each session was for 45 minutes. The details of the session management are as follows:

Experimental Group (fundamental and movement pattern training program plus basic volleyball skills)

- 10 minutes warm up
- 10 minutes fundamentals and movement pattern training program
- 20 minutes skill practice
- 5 minutes Cool down

Control Group (only basic volleyball skill training)

- 10 minutes warm up
- 30 minutes skill practice
- 5 minutes Cool down

After the 6 weeks training program basic volleyball test will be administered for

- Service skill
- Underarm volleyball
- Overarm volleyball skill.

Outline of the Experimental program

The Training program would differ for both the groups. Experimental Group is the one who was be trained for Fundamental and movement pattern program training plus basic volleyball skills both. This training program focused on developing the beginner volleyball players aged 12 to 13 years in the Fundamental skills and movement pattern program which included:

Locomotor skills	Non-Locomotor skills	Manipulative skills	Movement patterns	Volleyball Basic Skills
<ul style="list-style-type: none"> • Walking • Running • Jumping • Leaping • Skipping • Galloping • Side Slide 	<ul style="list-style-type: none"> • Bending • Twisting • Turning • Pushing 	<ul style="list-style-type: none"> • Throwing • Catching • Kicking 	<ul style="list-style-type: none"> • Forward • Backward • Side (Movements during volleyball game situations)	<ul style="list-style-type: none"> • Under Arm Pass • Over Arm Pass • Service

Procedure of data collection

Boys' basic volleyball skills i. e. service, underarm and overarm skill were observed and rated for both experimental and control group by two experts while they performed the skill with the help of the observational tool. The boys were given points from 1 to 5 for every 10 sub skills of service, underarm and overarm volleyball skill and the total points were calculated out of 50 points for analysis.

Analysis and Interpretation of data

In this present study data was collected through observation tools and every boy was given points on the basis of his performance in the given volleyball skill. Experts in volleyball sport have observed the skill performed by the boys and given the points. After observation of each boy in the basic volleyball skill data analysis was done and is interpreted as per given table 1, 1. 1, 2, 2. 2, 3 and 3. 3.

TABLE 1: Summary of Descriptive Statistics of Volleyball Service Skills of boys aged 12 to 13 years from Clara Global School

Statistic	Experimental Group	Control Group
Mean	33.54	32.00
Median	32.00	31.50
Standard Deviation	5.85	4.83
SEM	1.56	1.34
Minimum	26.50	26.00
Maximum	45.00	41

The table above shows descriptive analysis for the skill of service of both the groups. The mean represents the average service skills score for each group. The Experimental Group has a slightly higher mean (33.54) compared to the Control Group (32.00). The median represents the middle value of the service skills scores when arranged in ascending order. The Experimental Group has a median of 32.00, while the Control Group has a median of 31.50. The standard deviation measures the spread or dispersion of the data points from the mean. A higher standard deviation indicates more variability in the scores. The Experimental Group has a higher standard deviation (5.85) compared to the Control Group (4.83), suggesting that the service skills scores in the Experimental Group are more spread out. The Experimental Group has a slightly higher SEM (1.56) than the Control Group (1.34). The Experimental Group's lowest score is 26.50, and the highest score is 45.00. For the Control Group, the lowest score is 26.00, and the highest score is 41.00.

Overall, the data shows that the Experimental Group tends to have slightly higher service skills scores than the Control Group. However, there is some variability within each group, as indicated by the standard deviations.

TABLE 1. 2 : *T test of Experimental Group and Control Group for Volleyball Service Skill of boys aged 12 to 13 years from Clara Global School t-Test: Two-Sample Assuming Equal Variances*

Statistics	Experimental Group	Control Group
Mean	33.54	32.00
Variance	34.17	23.29
Df	25.00	
t Stat	0.74	
P(T<=t) two-tail	0.47	
t Critical two-tail	2.06	

The first objective here was to compare the mean value of volleyball service skill of Experimental group and Control group . The data was analyzed with the help of T-test and the results are given in Table 1. 1. From the table it can be seen that after finding the p value in the t table, using 25 degrees of freedom at 0. 05 Significant alpha level the t value is 2. 06. The calculated t value is lesser than the t table value at alpha level 0. 05. The p-value is greater than t value at alpha level $p > 0. 05$. The t-statistic (0. 74) is smaller than the t-critical value (2. 06), and the p-value (0. 47) is greater than the significance level of 0. 05. This indicates that there is not enough evidence to reject the null hypothesis. The null hypothesis in this case would be that there is no significant difference between the volleyball service skill scores of boys aged 12 to 13 years in the Experimental Group and the Control Group. Therefore, based on this analysis, we can conclude that there is no significant difference in the volleyball service skills between the two groups of boys at Clara Global School.

TABLE 2: Summary of Descriptive Statistics of Volleyball Underarm Pass Skills of boys aged 12 to 13 years from Clara Global School

Statistic	Experimental Group	Control Group
Mean	34. 89	32. 38
Median	35. 00	32. 50
Standard Deviation	4. 65	3. 39
SEM	1. 24	0. 94
Minimum	26. 5	27. 5
Maximum	42	38. 5

In the Table 2 In the statistical output of Basic volleyball skills it is summarized. The mean represents the average underarm pass skills score for each group. The Experimental Group has a higher mean (34. 89) compared to the Control Group (32. 38). The median represents the middle value of the underarm pass skills scores when arranged in ascending order. Both groups have similar median values, with the Experimental Group having a median of 35. 00 and the Control Group having a median of 32. 50. The Experimental Group has a higher standard deviation (4. 65) compared to the Control Group (3. 39), suggesting that the underarm pass skills scores in the Experimental Group are more spread out. The Experimental Group has a slightly higher SEM (1. 24) than the Control Group (0. 94). The Experimental Group's lowest score is 26. 50, and the highest score is 42. 00. For the Control Group, the lowest score is 27. 50, and the highest score is 38. 50. Overall, the data shows that the Experimental Group tends to have higher underarm pass skills scores compared to the Control Group.

TABLE 2. 1 : *T test of Experimental Group and Control Group for Volleyball Underarm Pass Skill of boys aged 12 to 13 years from Clara Global School t-Test: Two-Sample Assuming Equal Variances*

Statistics	Experimental Group	Control Group
Mean	34. 89	32. 38
Variance	21. 66	11. 46
Df	25. 00	
t Stat	1. 59	
P(T<=t) two-tail	0. 12	
t Critical two-tail	2. 06	

The mean value of volleyball underarm pass skill of Experimental group and Control group is compared in the above Table 2. 1. The data was analyzed with the help of T-test and the results are given in Table 2. 1. It can be seen that after finding the p value in the t table, using 25 degrees of freedom at 0. 05 alpha level the t value is 2. 06. The calculated t value is lesser than the t table value at alpha level 0. 05. This indicates that there is not enough evidence to reject the null hypothesis. The null hypothesis in this case would be that there is no significant difference between the volleyball underarm pass skills of boys aged 12 to 13 years in the Experimental Group and the Control Group. Therefore, based on this analysis, we can conclude that there is no significant difference in the volleyball underarm pass skills between the two groups of boys at Clara Global School. The p-value (0. 12) is relatively high, suggesting that the observed difference in means could have occurred by chance, and it is not statistically significant.

TABLE 3: *Summary of Descriptive Statistics of Volleyball Overarm Pass Skills of boys aged 12 to 13 years from Clara Global School*

Statistics	Experimental Group	Control Group
Mean	31. 54	32. 04
Median	31. 75	32. 50
Standard Deviation	4. 02	3. 70
SEM	1. 07	1. 03
Minimum	25. 00	25. 50
Maximum	38	38

In the Table 3 In the statistical output of Basic volleyball skills it is summarized. The Control Group has a slightly higher mean (32. 04) compared to the Experimental Group (31. 54). The Control Group has a slightly higher median (32. 50) compared to the Experimental Group (31. 75). The Experimental Group has a lower standard deviation (4. 02) compared to the Control Group (3. 70), suggesting that the overarm pass skills scores in the Experimental Group are less spread out. A smaller SEM indicates a more precise estimate of the population mean. The Experimental Group has a slightly lower SEM (1. 07) than the Control Group (1. 03). Both groups have the same maximum score of 38. 00. The Experimental Group's lowest score is 25. 00, and the Control Group's lowest score is 25. 50. Overall, the data shows that the Control Group tends to have slightly higher overarm pass skills scores compared to the Experimental Group. However, the differences in mean and median are relatively small, and the scores are quite close to each other. The standard deviations and SEMs are also similar, indicating that the data points are not highly dispersed.

TABLE 3. 1 : T test of Experimental Group and Control Group for Volleyball Overarm Pass of boys aged 12 to 13 years from Clara Global School Skill t-Test: Two-Sample Assuming Equal Variances

Statistics	Experimental Group	Control Group
Mean	31. 54	32. 04
Variance	16. 17	13. 69
df	25. 00	
t Stat	-0. 34	
P(T<=t) one-tail	0. 37	
t Critical two-tail	2. 06	

The mean value comparison of overarm pass volleyball skill of Experimental group and Control group . The data was analyzed with the help of T-test and the results are given in Table 3. 1.

From Table 3. 1 it can be seen that after finding the p value in the t table, using 25 degrees of freedom at 0. 05 significant alpha level the t value is 2. 06. The calculated t value is lesser than the t table value at alpha level 0. 05. The p-value is greater than t value at alpha level $p > 0. 05$. This indicates that there is not enough evidence to reject the null hypothesis. The null hypothesis in this case would be that there is no significant difference between the volleyball overarm pass skills of boys aged 12 to 13 years in the Experimental Group and the Control Group. Therefore, based on this analysis, we can conclude that there is no significant difference in the volleyball overarm pass skills between the two groups of boys at Clara Global School. The

results suggest that the observed difference in means could have occurred by chance, and it is not statistically significant.

Discussion

Various previous researches have been conducted on volleyball skills acquisition utilizing the method of variation of volleyball basic technique through games approach. Students must be able to do certain fundamental motions in order to play volleyball properly. As a result, the design of teacher learning has a significant impact on how ready students are to learn. When teaching fundamental skills, the teacher may employ engaging games. However, the results of the study of field data indicate that junior high school pupils have trouble playing volleyball using fundamental techniques. (Gay, Mills, & Airasian, 2012).

A Study where the goal was to improve volleyball fundamental technique through a game-based approach. The study's findings have implications for changes in the concept of learning sports, especially volleyball (Siti Ayu Risma Putri, Firmansyah Dis, Samsudin, 2020). A Study was to see if there was any transfer of fundamental movement skills to the level of specialized gymnastics skills. This study was a similar study done in gymnastic sport. It was carried out for 18 weeks. The results of regression analysis, the participants who had better initial results in fundamental movement skills for surmounting obstacles also had better results of gymnastics skills in the final measurement point. (Zoran Čuljak, Sunčica Delaš, Kalinski, Ana Kezić, Đurđica Miletić, 2014). In the study done on effect of fundamental and movement pattern program on the basic volleyball skill attainment of boy's age 12 to 13 yrs. the reason behind no significant difference may be due to only a 6 week program been conducted.

Conclusion

According to many researches fundamental movement training shows positive effect on skill acquisition but in the present investigation results contrast with them. After finding these result researcher had discussion with the experts and gone through references according Miller Type II error might have occurred in this research which may be because of: Sampling error

- Sampling error
- Training program

Thus, it can be concluded from the above statistics analysis that the fundamental and movement

pattern program did not impact the volleyball basic skills attainment in boys of 12 to 13 yrs.

Recommendations

- It is recommended that research shall be conducted to study the effect of fundamental and movement pattern program the volleyball basic skills attainment in boys of 12 to 13 yrs. for a longer duration.
- It is recommended to take Fundamental and movement program on Experimental group prior few weeks and then begin with basic skill training.
- To have fundamental skill to be tested prior to sampling.
- It is recommended that this study will be a pilot study for the further studies

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