



Effects of Skill Based Plyometric Training on Explosive Power of School Level Volleyball Players

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Received 14th October 2018, Accepted 1st November 2018

Abstract

The purpose of the study is to investigate the effect of plyometric training on different age group boys on coach rated volleyball skills in relation to selected variable of Explosive Power. To achieve the purpose of the present study 60 Volleyball players were selected (20 school boys in the age group of 14-16 years, 20 Pre university college boys in the age group of 17 to 19 years and 20 First Grade College boys in the age group of 20 to 22 years) as subjects from Karnataka state at random. The selected variable was Explosive Power. The collected data on criterion measures were treated by Standing Broad Jump apparatus, score sheet, sliding marker and measuring scale for Explosive Power. The collected data were statistically analyzed by t ratio, one way analysis of variance test was applied and the level of significance for the study was 0.05 level. The collected data were statistically analyzed by t ratio, one way analysis of variance test was applied. The level of significance for the study used was 0.05 level. Wherever significant differences were found scheffe's post-hoc test was used. The results revealed that there was significant difference in the Explosive Power of Volleyball players. There exists significant difference in their interaction effect in Explosive Power level among different age groups of Volleyball players.

Keywords: School Boys, Pre University College Boys, First Grade College Boys, Volleyball Players and Explosive Power.

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Introduction

Concerning illustration it should use those terms of plyometrics to show polishes utilizing those shock technique, it could have a chance to be alluring through the use of those term flimsy alternately certified plyometrics which camwood may see as the same Likewise those plyometrics at first made Eventually by Tom's perusing Verkhoshansky. Those shock system that he constructed might have been the delayed consequence for the exercises that happen in running and bobbing. He found that the arrivals and departures to these two aptitudes included High German reaction forces that were executed did an incredible level smart also unstable route. For instance, occasion when for execution of the landing and flight for hopping might have been close to 0.20 second What's more for dashing it might have been approximately 0.10 second.

Since a standout amongst the basic destinations of the soviet exploration make sensible strategies to get ready on upgrade physical execution, of the end of the activities, for example, the profundity hop, that a person made, those rival might overhaul as much ability in the flight which is much resultant execution in the running

or hopping event. Verkhoshansky investigated different parkways on the different activities, yet the profundity jump required every last one of earmarks from claiming continuously the best will copy the forces in the landing Furthermore flight.

Those second type for plyometrics, seen, similarly as it were, in the United States, identifies with completing whatever kind of jump paying little regard to execution run through. Such jumps cannot chance to be recognized truly plyometric (as portrayed by Verkhoshansky) since the force of execution is a great part easier and the time needed to start with those unpredictable of the concentric layering may be altogether a greater amount foremost. The expression plyometrics turned out on a chance to be greatly referred to with those handling from claiming a lot of people books on the theme. It presently appears challenging with retreat to its interesting essentialness and techno babble to execution.

Accordingly, it is indispensable to distinguish which sort of "plyometric" act will be used concerning illustration and only solicitation choose its sufficiency Furthermore possibility will give to those communicated favourable circumstances. In spite of those ways the sake plyometrics will be provided with the sum hops, not constantly on bounces. Potach Furthermore Chu, (2000) offer the going with proposals for a single guidelines meeting: low-force get ready 400-foot contacts; regulate

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control get ready 350-foot contacts; high-potential get ready 300-foot contacts, high-potential get ready 200-foot contacts. Background ought to be similarly on endorsing plyometric. Rivals with inconsequential knowledge using plyometric ought further bolstering stay with the ground contacts on under 100 maximal endeavours for each session, same time the individuals for far reaching knowledge Might bring upwards about 120– 140 maximal effort ground contacts for every session.

Reviews of Related Literature

Khelifa, et al., (2010) said that the furnishings of a plyometric training affairs with and after added amount on jumping adeptness in basketball players. Rahman, et al., (1990) compared the furnishings of 3 altered training protocols-plyometric training, weight training, and their aggregate on the vertical jump performance, anaerobic adeptness and able-bodied strength. Hubert, et al., (2010) analysed the bent after effect of plyometric contest performed with minimum arena acquaintance time on the acute adeptness achievement of the legs and jumping ability. Toplica, et al., (2002) advised the furnishings of the plyometric action training archetypal on the development of the vertical jump of volleyball players. Mayur et al., (2013) advised the after effect of plyometric contest for the development of acceleration amid football players. Baljinder, et al., (2011) advised the furnishings of a abbreviate appellation plyometric training affairs of activity in adolescent Basketball players.

Objective of the Study

1. To make an overall analysis of the effect of Plyometric training on different age group boys on coach rated volleyball skills in relation to selected variable of Explosive Power.
2. To study the variables as predictors of performance of different age group boys on coach rated volleyball skills.

Analysis and Interpretations of Data

Table 1

The tabulation shows the mean values between pre and post test of plyometric training with skill training on the development of explosive power among 14 to 16 age years group of volleyball players

Variables	Test	Mean	S.D	S.E.M	M.D	T-Ratio
Explosive Power in Centimeters	Pre test	41.700	3.045	0.680	2.250	11.052*
	Post test	43.950	2.837	0.634		

0.05 level of significance (2.09)

Table 1 displays the results of 't' value of Explosive Power (11.052). The obtained tabulated t value is 2.09 statistically significant difference at the 95 % confidential level, D.F. (1, 19). It is found that the

3. To know exactly at what age level the Plyometric training will have the influence on Volleyball skill performance.

Hypotheses

1. It was hypothesized that the Plyometric training with twelve weeks of training emphasized the improvement in executing Volleyball skills.
2. It was hypothesized that there will be significant influence of Plyometric training in different age levels of coach rated skill performance.
3. It was hypothesized that there was a relationship of Explosive Power in Plyometric training.

Methods and Materials

The purpose of the study is to investigate the effect of plyometric training on different age group boys on coach rated volleyball skills in relation to selected variable of Explosive Power. To achieve the purpose of the present study 60 Volleyball players are selected (20 school boys in the age group of 12-14 years, 20 Pre university college boys in the age group of 17 to 19 years and 20 First Grade College boys in the age group of 20 to 22 years) as subjects from Karnataka state at random. The selected variable is Explosive Power. The collected data on criterion measures are treated by Standing Broad Jump Apparatus, Score Sheet, Sliding Marker and Measuring Scale for Explosive Power. The collected data are statistically analyzed by t ratio, one ways analysis of variance test is applied and the level of significance for the study is 0.05 level. The collected data are statistically analyzed by one way analysis of variance test is applied. The level of significance for the study used is 0.05 level. Wherever significant differences are found scheffe's post-hoc test was used.

value is statistically significant at 0.05 level of confidence. It is observed that the mean gains and losses made from pre and post test are shows significant improvement in Explosive Power ($2.250p < 0.05$), thus

the formulated hypothesis No 1 is accepted.

Table 2

The tabulation shows the mean values between pre and post test of plyometric training with skill training on the development of explosive power among 17 to 19 years age group of volleyball players

Variables	Test	Mean	S.D	S.E.M	M.D	T-Ratio
Explosive Power in Centimeters	Pre test	42.050	2.564	0.573	2.900	20.241
	Post test	44.950	2.327	0.520		

0.05 level of significance (2.09)

Table 2 displays the results of 't' value of Explosive Power (20.241). The obtained tabulated t value was 2.09 statistically significant difference at the 95 % confidential level, D.F. (1, 19). It is found that the value is statistically significant at 0.05 level of

confidence. It is observed that the mean gains and losses made from pre and post test shows significant improvement in Explosive Power ($2.900p < 0.05$), thus the formulated hypothesis No 2 is accepted.

Table 3

The tabulation shows the mean values between pre and post test of plyometric training with skill training on the development of explosive power among 20 to 22 years age group of volleyball players

Variables	Test	Mean	S.D	S.E.M	M.D	T-Ratio
Explosive Power in Centimeters	Pre test	42.000	1.654	0.369	4.650	18.294*
	Post test	46.650	1.308	0.292		

0.05 level of significance (2.09)

Table 3 displays the results of 't' value of Explosive Power (18.294). The obtained tabulated t value is 2.09 statistically significant difference at the 95 % confidential level, D.F. (1, 19). It was found that the value is statistically significant at 0.05 level of

confidence. It is observed that the mean gains and losses made from pre and post test shows significant improvement in Explosive Power ($4.650p < 0.05$), thus the formulated hypothesis No 3 is accepted.

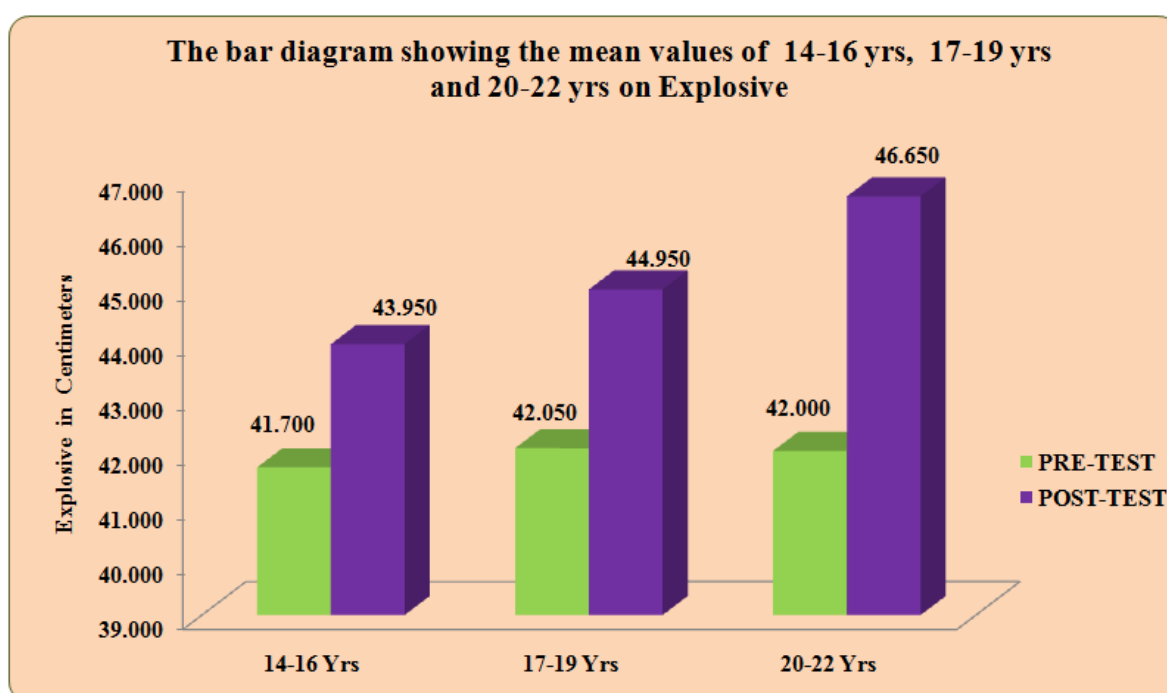


Figure.1

Table 4

Analysis of variance on pre test mean values among plyometric training with skill training on the development of explosive power among 14-16 yrs, 17-19 yrs and 20-22 yrs age group of volleyball players

Variables	Source of Variance	Sum of Squares	DF	Mean Square	F	Sig.
Explosive Power in Centimeters	Between	1.433	2	0.717	0.116	0.891
	Within	353.150	57	6.196		

0.05 level of significance (3.16)

Table 4 views that the obtained 'F' value for the 14-16 Yrs, 17-19 Yrs and 20-22 Yrs age group of Volleyball players on Explosive Power (0.116). The obtained tabulated f value is 3.16 statistically has

significant differences at the 95 % confidential level and the degrees of freedom (2, 57). It was found that the value is statistically insignificant. So the treatment is successful.

Table 5

Analysis of variance on post test mean values among the plyometric training with skill training on the development of explosive power among 14-16 yrs, 17-19 yrs and 20-22 yrs age group of volleyball players

Variables	Source of Variance	Sum of Squares	DF	Mean Square	F	Sig.
Explosive Power in Centimeters	Between	74.533	2	37.267	7.364	0.001
	Within	288.450	57	5.061		

0.05 level of significance (3.16)

Table 5 views that the obtained 'F' value for the 14-16 Yrs, 17-19 Yrs and 20-22 Yrs age group of Volleyball players on Explosive Power (7.364). The obtained tabulated f value is 3.16 statistically has

significant differences at the 95 % confidential level and the degrees of freedom (2, 57). It was found that the value is statistically insignificant. So the treatment is successful.

Table 6

Analysis of co-variance on pre and post test mean values among the plyometric training with skill training on the development of explosive power among 14-16 yrs, 17-19 yrs and 20-22 yrs age group of volleyball players

Variables	Source of Variance	Sum of Squares	DF	Mean Square	F	Sig.
Explosive Power in Centimeters	Between	63.401	2	31.700	45.411	.000
	Within	39.093	56	0.698		

0.05 level of significance (3.16)

Table 6 views that the obtained 'F' value for the 14-16 Yrs, 17-19 Yrs and 20-22 Yrs age group of volleyball players on Explosive Power (45.411). The obtained tabulated f value is 3.16 statistically has

significant differences at the 95 % confidential level and the degrees of freedom (2, 57). It is found that the value is statistically insignificant. So the treatment is successful.

Table 7

The scheffe's post hoc test for the differences between adjusted post test means of 14-16 yrs, 17-19 yrs and 20-22 yrs age group on explosive power

14-16 Yrs	17-19 Yrs	20-22 Yrs	M.D Difference	Confidence Interval Value
44.132	44.838	---	0.706	0.75
44.132	---	46.580	2.448	0.75
---	44.838	46.580	1.742	0.75

* Significant at 0.05 level of confidence

Table 7 shows the adjusted post hoc test mean values of 14-16 Yrs group, 17-19 Yrs group and 20-22 Yrs group. The mean difference required for the confidential interval to be significant is 0.75. To Compare the 14-16 Yrs group and 17-19 Yrs group, the mean differences between the two groups are 0.706. Hence 17-19 Yrs group shows better improvement on Explosive Power. To compare the 14-16 Yrs group and 20-22 Yrs group, the

mean differences between the two groups are 2.448. Hence 20-22 Yrs group shows better improvement on Explosive Power. To compare 17-19 Yrs group and 20-22 Yrs group, the mean differences between the two groups are 1.742. Hence 20-22 Yrs group shows better improvement on Explosive Power. Finally 20-22 Yrs group showed better than the 17-19 Yrs group and 14-16 Yrs group on Explosive Power.

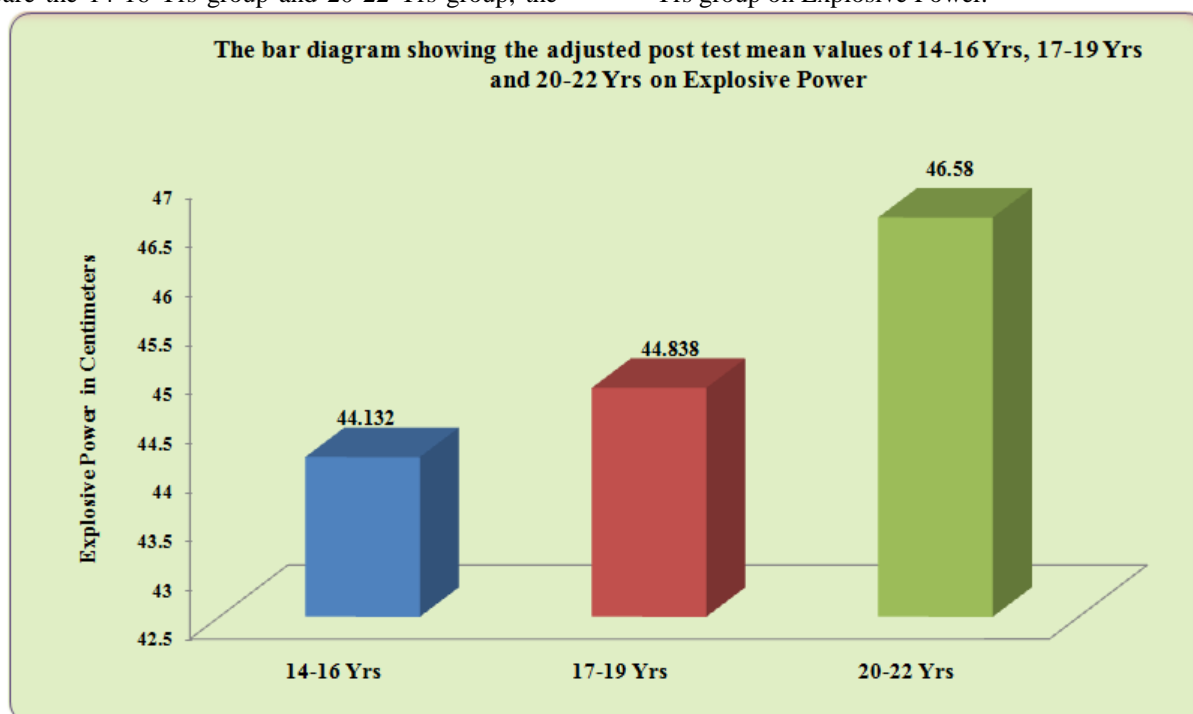


Figure.4

Results and Discussion

This study confirms that improvement in selected plyometric training with skill training on the development of Explosive Power among 14-16 yrs, 17-19 yrs and 20-22 yrs different age groups of volleyball players. The Explosive Power increased in the 14-16 yrs group from pre test (41.70 ± 3.04) to post test (43.95 ± 2.83); 17-19 yrs group from pre test (42.05 ± 2.56) to post test (44.95 ± 2.32) and 20-22 yrs group from pre test (42.00 ± 1.65) to post test (46.50 ± 1.30). The Explosive Power significantly showed improvement from pre test to post test in the three Treatment groups. The study demonstrated that an increase in Explosive Power of

5.40%, 6.90% and 11.07% was estimated with Standing Broad Jump test for 14-16 yrs, 17-19 yrs and 20-22 yrs different age groups of volleyball players respectively. 20-22 yrs Group significantly showed improvement the Explosive Power by 11.07% better than the 17-19 yrs group 6.90% and 14-16 yrs group 5.40%. The 17-19 yrs group improved the Explosive Power by 6.90% better than the 14-16 yrs group.

Results

1. The result of the study showed that plyometric training with skill training on the development of 14-16 yrs aged group shows significant

- improvement on Explosive Power of school Volleyball players.
2. The result of the study showed that plyometric training with skill training on the development of 17-19 yrs aged group had significant improvement on Explosive Power of Pre University boys Volleyball players.
 3. The result of the study showed that plyometric training with skill training on the development of 20-22 yrs aged group had significant improvement on Explosive Power of First Grade College boys Volleyball players.
 4. The result of the study showed that plyometric training with skill training on the development of 20-22 yrs aged group had significantly better improvement than 17-19 yrs aged group and 14-16 yrs aged group on Explosive Power of First Grade College boys' Volleyball players.
 5. The result of the study showed that plyometric training with skill training on the development of 17-19 yrs aged group had significant better improvement than 14-16 yrs aged group on Explosive Power of First Grade College boys' Volleyball players.

Conclusions

1. It was concluded that plyometric training with skill training on the development of 14-16 yrs aged group showed significant improvement on Explosive Power of school volleyball players.
2. It was concluded that plyometric training with skill training on the development of 17-19 yrs aged group showed significant improvement on Explosive Power of Pre University boys volleyball players.
3. It was concluded that plyometric training with skill training on the development of 20-22 yrs aged group showed significant improvement on Explosive Power of First Grade College men Volleyball players.
4. It was concluded that plyometric training with skill training on the development of 20-22 yrs aged group showed significantly better improvement than 17-19 yrs aged group and 14-16 yrs aged group on Explosive Power of First Grade College boys' Volleyball players.
5. It was concluded that plyometric training with skill training on the development of 17-19 yrs aged group showed significantly better improvement than 14-16 yrs aged group on Explosive Power of First Grade College Men' Volleyball players.

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