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Effect of Sand Plyometric Training on Sprinting and Jumping Performance of School Volleyball Players

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Abstract

The sand plyometric training significantly improved sprinting variables namely 30 m dash and 50 m dash performance of the experimental group. The sand plyometric training significantly improved jumping variables namely vertical jump and long jump of the experimental group. In the present study thirty volleyball players were selected randomly from Don. Bosco Hr.Sec.School, Chennai. The subjects were equally divided into two groups namely experimental group and control group, and the age of the subjects were ranged from 14 to 16 years. The investigator explained the purpose, importance of the experiment and the procedure, the role of the subjects during the experiment and the testing procedure were also explained to and good health. They were requested to co-operate and participated activity for the same. During the training period, the experimental groups under groups underwent their respective training programme 3 days a week for 12 week in addition to their regular task. On the training days, practices lasted in the evening 4.30 to 5.30 p.m approximately. The control group did not participate in any specific training. However, they had to perform their regular activities. The collected data from the subject during pre and post test were used for statistical analysis to find out the effect of the treatment on the criterion variable. The collected data were statistically analyzed by using dependent 't' test to find out the significant difference at 0.05 level.

Keywords: Plyometric Training, Sprinting, Jumping, Volleyball Players.

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Introduction

The skill level of athletes in various sports improve year to year. competitive sports are becoming highly technical job. A lot of research is being done by western countries on the scientific basis of sports performance in sports. As a result of these research new techniques are being adopted for training high level sportsmen. Physical education starts from very birth of a child. The very moment it comes into being. It begins to cry and move its limbs. it is they who first taught it how to climb a tree, use bow and arrow, a spear or swim or catch a fish, physical education is now very much connected with biological, sociological, psychological, economics, political and cultural aspects of life. It has also got much relationship with the environment and great stress is now a days laid on this aspect

Sports training

The word training has been a part of human language since ancient times. It denotes the process of preparation for some task. this process invariably extends to a number of days even month and year. the term training is often used in sports. The word training in its

broad sense, refers to any organized any systematic instructional process, which aims at enhancing man's ability with regard to physical, psychological and intellectual aspects in the field of sport, training is a process which involves preparation of a sports person to attain height level of sports performance.

Plyometric training in sports

Plyometric training is one of an the best methods to develop explosive power for sports. The origin of term is derived from the Greek words "plio" and "metric", meaning more and measure, respectively. Today plyometric movements are performance in almost all sport disciplines. For example jumping high in volleyball for smash or block, start acceleration in football, sprint, for jumpers and throwers, gymnasts.

Speed

Hare and Gundlack define it as "ability to move forward with highest possible speed".

Lewin define speed is the ability to overcome resistance quickly.

"The speed is the ability to perform a movement with a definite speed on the basis of neuro-muscular processes".

Explosive Power

Explosive power is a combination of speed and

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strength culminating in fast explosive movements against resistance. It will be interesting to note that two different kind of events involving light resistance will lay emphasis on speed while physical performance against heavy resistance is an effective strength application in explosive strength is an effective strength application in the explosive and speed performance, the import highest velocity to the body or the sports implements.

Methodology

In the present study thirty volleyball players were selected randomly from Don. Bosco Hr.Sec.School, Chennai. The subjects were equally divided into two groups namely experimental group and control group, and the age of the subjects were ranged from 14 to 16 years. The investigator explained the purpose, importance of the experiment and the procedure, the role of the subjects during the experiment and the testing procedure were also explained to and good health. They were requested to co-operate and participated activity for the same

Analysis and Interpretation of Data

Table 1

Analysis of 't' ratio for the pre and post test of control and experimental group on 30 M Dash

variable	groups	N	Pre test Mean SD	Post test Mean SD	M.D	S.E	' ratio'	Sig (2tailed)
30 m dash	Ex.gr	15	6.34 0.52	5.84 0.07	0.50	0.22	2.24*	.04
	Con.gr	15	6.07 0.68	6.29 0.73	-0.22	0.24	0.91	.376

The pre and post test mean for 30 meters dash of experimental group are 6.34 and 5.84 respectively. The calculated 't' value for 30 meters dash in the experimental group is 2.24, which is significant at 0.05 level of confidence. The result shows that there was positive effect on sand plyometric training on 30 meters

Training programme

During the training period, the experimental groups under groups underwent their respective training programme 3 days a week for 12 week in addition to their regular task. On the training days, practices lasted in the evening 4.30 to 5.30 p.m approximately. The control group did not participate in any specific training. However, they had to perform their regular activities.

Duration : 12 weeks

Time : 45 – 60 minutes

Day's : three day per week

Statistical Technique

The collected data from the subject during pre and post test were used for statistical analysis to find out the effect of the treatment on the criterion variable. The collected data were statistically analyzed by using dependent 't' test to find out the significant difference at 0.05level.

dash. the calculated 't' value for 30 m dash in the control group is 0.91, which is insignificant at 0.05 level of confidence. from the result of paired 't' test shows significant changes of plyometric training on 30 meters dash between experimental group and control group.

Table 2

Analysis of 't' ratio for the pre and post test of control and experimental group on 50 M Dash

variable	groups	N	Pre test Mean SD	Post test Mean SD	M.D	S.E	' ratio'	Sig (2tailed)
50 m dash	Ex.gr	15	8.35 0.61	7.08 0.61	1.27	0.32	3.95*	.001
	Con.gr	15	7.61 0.50	7.88 0.62	-0.27	0.17	1.60	.132

The pre and post test mean for 50 meters dash of experimental group are 8.35 and 7.08 respectively. The calculated 't' value for 50 meters dash in the experimental group is 3.95, which is significant at 0.05 level of confidence. The result shows that there was positive effect on sand plyometric training on 50 meters dash. the calculated 't' value for 50 m dash in the control group is 1.60, which is insignificant at 0.05 level of confidence. from the result of paired 't' test shows significant changes of plyometric training on 50 meters dash between experimental group and control group

Table 3

Analysis of 't' ratio for the pre and post test of control and experimental group on Vertical jump

variable	groups	N	Pre test Mean SD	Post test Mean SD	M.D	S.E	' ratio'	Sig (2tailed)
Vertical jump	Ex.gr	15	0.41 0.08	0.51 0.08	-0.099	0.02	4.46*	.001
	Con.gr	15	0.36 0.04	0.41 0.06	-0.04	0.02	2.39*	.031

The pre and post test mean for vertical jump of experimental group are 0.41 and 0.51 respectively. The calculated 't' value for vertical jump in the experimental group is 4.46, which is significant at 0.05 level of confidence. The result shows that there was positive effect on sand plyometric training on vertical jump. the

calculated 't' value for vertical jump in the control group is 2.39, which is insignificant at 0.05 level of confidence. From the result of paired 't' test shows significant changes of plyometric training on vertical jump between experimental group and control group.

Table 4

Analysis of 't' ratio for the pre and post test of control and experimental group on long jump

variable	groups	N	Pre test Mean SD	Post test Mean SD	M.D	S.E	' ratio'	Sig (2tailed)
long jump	Ex.gr	15	3.29 0.41	3.58 0.43	0.29	0.12	2.28*	.039
	Con.gr	15	2.88 0.42	2.69 0.36	0.19	0.15	1.25	.233

The pre and post test mean for long jump of experimental group are 0.41 and 0.51 respectively. The calculated 't' value for long jump in the experimental group is 4.46, which is significant at 0.05 level of confidence. The result shows that there was positive effect on sand plyometric training on long jump. the calculated 't' value for long jump in the control group is 2.39, which is insignificant at 0.05 level of confidence. From the result of paired 't' test shows significant changes of plyometric training on long jump between experimental group and control group

Conclusion

1. The sand plyometric training significantly improved sprinting variables namely 30 m dash and 50 m dash performance of the experimental group.
2. The sand plyometric training significantly improved jumping variables namely vertical jump and long jump of the experimental group.

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