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Effect of plyometric exercises on jumping ability of school going children

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Abstract

Introduction: Jumping exercises are involved in anaerobic exercises. Players who do jumping exercises regularly, have chances of strong bone density, good coordination and balance, good respiratory health and muscle tone. Long jump is involved in track & field events. In one attempt long jump combines strength, agility and speed to cross more and more distance from the take-off spot. The researcher was with the aim to find out the effect of plyometric exercises on jumping ability of Govt. Upper Primary school Chewakhurad children.

Materials and Methods: Data was collected with the help of two assistants on 60 male students (Age 8 ± 15 years) at long jump pit of the school. The sixty students were divided by the researcher into 2 groups (Thirty in Exp group & thirty in Control group). The researcher prepared a six week training program before start of his research. The training instruction was given every day by the researcher before start of the training in the school. The researcher collected the data by using Purposive sampling method. The researcher selected Long jump variable for his collection of data. The data was analysed using descriptive and t test.

Results: The mean value & standard deviation for Control and Exp group (Pre-test) was 3.44#3.45 & 0.31#0.34 in relation to Long jump. The mean value & S.D for Control and Exp group (Post-test) was 3.47#3.94 & 0.28#0.20 respectively, in relation to Long jump. Calculated t-ratio for control group was found 0.39, where as calculated t-ratio for experimental group was found 6.90 in relation to Long jump.

Conclusions: Significant effectiveness of plyometric exercises on jumping ability with respect to long jump among school children of Govt. Upper Primary School Chewakhurad was found.

Keywords: plyometric exercise, jumping, long jump

Introduction

The primitive man used long jump, high jump and other activities while chasing the animals for meat for his survival. Long jump is a simple activity as compared to other jumping activities like high jump, triple jump. Jumping exercises are involved in anaerobic exercises. Players who do jumping exercises regularly have chances of strong bone density, good balance and coordination, good respiratory health and muscle tone. The long jump is a track and field event in which athletes combine speed, strength and agility in an attempt to leap as far as possible from a take-off point (Gem N Rach Wilson-Cox 2020). Long jump is included in multiple event competitions which included Pentathlon, heptathlon and Decathlon. Long jump was played from the ancient Olympics, so it has a long history. In the beginning the long jumpers also use wrong techniques, but with the passage of time, they use correct techniques and show the good performance in the competitions. False techniques can decrease the performance of long jumpers during the competitions. Long jump consists of four main skills which are running, last two strides, take off & position in the air, landing. These four skills should be in a correct way so that long jumper can jump as farther as possible. Plyometric exercises are considered effective tool to improve the performance of long jumpers during the competition.

Materials and Methods

The sample comprised of 60 male students of Govt. Upper Primary school Chewakhurad which were selected as subjects for the present study and their age ranged between 8 to 15 years. These 60 students were divided into two groups (30 in Exp group and 30 in control

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group). With the purpose of this study, the researcher prepared a six week training program before start of the research. The instruction of training was given by researcher every day before start of his training in Govt. Upper Primary school Chewakhurad for this study. Modified tools were used for data collection (Long jump pit, measuring tape and lime).

Data was collected with the help of two assistants on 60 male students at long jump pit of the school, before and after the six week training program. Purposive sampling method was used for collection of data. Only one variable was selected for collection of data, i.e., Long jump. The data was analysed using descriptive and t test.

Table 1: Six week training program for experimental group

Training week	Plyometric exercise	Sets/Repetition	Training intensity
01	Side to side ankle hops	2 x 15	Low
	Standing jump & reach	2 x 15	Low
	Front cone hops	6 x 5	Low
02	Side to side ankle hops	2 x 15	Low
	Standing long jump	2 x 15	Low
	Lateral jump over barrier	6 x 5	Medium
	Double leg hops	10 x 3	Medium
03	Side to side ankle hops	2 x 12	Low
	Standing long jump	2 x 12	Low
	Lateral jump over barrier	6 x 4	Medium
	Double leg hops	8 x 3	Medium
	Lateral cone hops	2 x 12	Medium
04	Single leg bounding	2 x 12	High
	Standing long jump	3 x 10	Low
	Lateral jump over barrier	8 x 4	Medium
	Lateral cone hops	3 x 10	Medium
	Tuck jump with knees up	4 x 6	Medium
05	Single leg bounding	2 x 10	High
	Jump to box	2x 10	Low
	Double leg hops	6 x 3	Medium
	Lateral cone hops	2 x 11	Medium
	Tuck jump with knees up	6 x 5	High
	Lateral jump over barrier	3 x 10	High
06	Jump to box	2 x 11	Low
	Depth jump to prescribed height	4 x 5	Medium
	Double leg hops	6 x 3	Medium
	Lateral cone hops	2 x 10	Medium
	Tuck jump with knees up	4 x 5	High
	Lateral jump single leg	2 x 10	High

Results and Discussions

Mean, S.D. and T-ratio of Control and Experimental Group of students belonging to Govt. Upper Primary school

Chewakhurad, with respect to Long jump to measure the explosive strength.

Table 2: Comparison of control and experimental group with respect to long jump

Variable	N	Group	Pre-test	Mean	S.D.	S.V. (0.05)	T-ratio
Long jump	30	Control Group	Pre-test	3.44	0.31	2.048	0.39
			Post-test	3.47	0.28		
	30	Experimental Group	Pre-test	3.45	0.34	2.048	6.90
			Post-test	3.94	0.20		

In table-2, it was observed that the mean & S.D of Control & Exp Group (Pre-test) was 3.44#3.45 & 0.31#0.34 in relation to Long jump. The mean value & S.D of Control and Exp group (Post-test) was 3.47#3.94 & 0.28#0.20 respectively, in relation to Long jump. Calculated t-ratio for control group was found 0.39, where as calculated t-ratio for experimental group was found 6.90 in relation to Long jump. Significant effect of plyometric exercises on jumping ability with respect to long jump among students of Govt. Upper Primary school Chewakhurad was found. So the hypothesis given earlier by researcher was accepted. Experimental Group showed better results than the Control group, because experimental group was performing plyometric exercises regularly. With the help of these daily plyometric exercises, the jumping ability of the experimental group found improved.

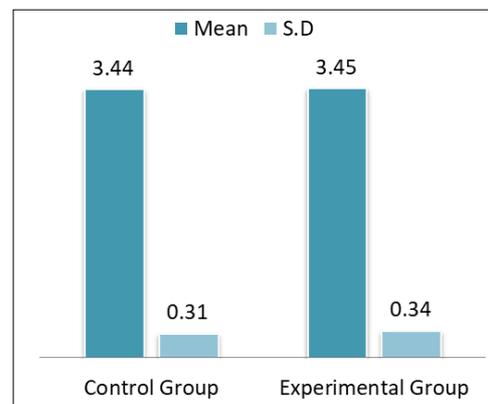


Fig 1: Graphical representation of pre-test of control & experimental group

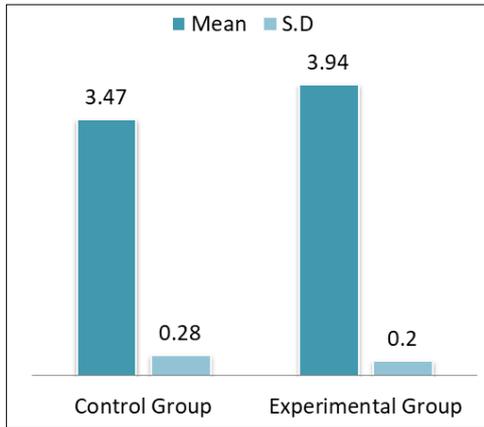


Fig 2: Graphical representation of post-test of control & experimental group

Conclusion and Recommendations

The findings showed significant effect of plyometric exercises on jumping ability with respect to long jump among students of Govt. Upper Primary school Chewakhurad among experimental group of students.

The homogeneous study may be taking over on the female students and other schools for different age groups. The similar study may be taken on different sportsmen with different geographical area. Same research may be taken on a larger sample of the students.

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