



Effects of Plyometric and Circuit Training on Vital Capacity of Kho-Kho Players

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Abstract : The Aims was Effects of Plyometric and Circuit Training on Vital capacity of Kho-Kho Players. Male players of Kho-Kho selected at school level in Nadiad District were selected in the present study. Total 90 male players were selected as subjects for the sample of the present study, in which 30 players were included in the plyometric training group, 30 in circuit training group and 30 players were included in the control group. The male players of 13 to 17 years age group were included in the present study. The Vital capacity measurement of Pic flow meter machine. Statistical technique such as analysis of covariance was applied to know the effects on plyometric training group and circuit training group. Mean difference was examined at 0.05 levels by using Least Significant Difference (Post Hoc) Test. Remarkable higher improvement was seen compared to the controlling group in the performance of the subjects' overall oxygen capacity because of plyometric training and circuit training.

Introduction :

Physiology provides information about how, when and why the organs of the body work. The knowledge of physiology helps us to keep good health. Human body is like a machine, which works according to its rules and laws. We can know where the damage is occurred and what should be done to remove that defect by the knowledge of physiology. The study of Physiology provides us understanding of body composition and its functions.

Many professional and Olympic athletes use plyometrics training to improve muscular strength and jumping abilities, which therefore increases their power. There are varying levels of intensity to plyometrics. Another benefit of plyometrics are that you can vary your level of intensity which means anyone looking to improve strength and jumping training can be involved regardless of fitness. Another good reason with so many exercises being available is that you can find exercises that do not require the use of any equipment. It also increases muscular strength and endurance increases metabolic rate, which increases weight loss and heart rate.

Objective of the study :

Effects of Plyometric and Circuit Training on Vital capacity of Kho-Kho Players

Selection of Subjects

Male players of Kho-Kho selected at school level in Nadiad District were selected in the present study. Total 90 male players were selected as subjects for the sample of the present study, in which 30 players were included in the plyometric training group, 30 in circuit training group and 30 players were included in the control group. The male players of 13 to 17 years age group were included in the present study.

Criterion measurement :

No.	Variable	Test	Measurement
1	Vital capacity	Pic flow meter	ml

Statistical Process

Statistical technique such as analysis of covariance was applied to know the effects on plyometric training group and circuit training group. Mean difference was examined at 0.05 levels by using Least Significant Difference (Post Hoc) Test.

Result of the study :

Table – 1
Analysis of covariance of mean scores of vital capacity of two experimental groups and a control group

Test	Groups			Analysis of variance				
	Plyometric	Circuit	Control	Sum of classes (SS)		df	MSS	'F'
Pretest mean	342.6667	363.3333	340.3333	A	9615.556	2	4807.778	1.383
				W	302550.00	87	3477.586	
Post-test mean	369.00	394.6667	391.00	A	28895.556	2	14447.778	4.077
				W	308286.667	87	3543.525	
Adjusted mean	374.858	380.715	359.094	A	7364.878	2	3682.439	10.448*
				W	30309.693	86	352.438	

*Significance criterion at 0.05 levels 'F' = 0.05 (2,87) = 3.101 & (2,86) = 3.103

In table – 1, detail of mean scores of pretest and post test, analysis of covariance and all statistical data of 'F' is mentioned. The mean scores on vital capacity pretest of plyometric group, circuit group and control group was found 342.6667, 363.3333 and 340.3333 respectively. 'F'- ratio was found 1.383, which was not significance with the tabular value (3.101) at 0.05 levels. So the distribution of subjects into experimental group and control group was found successful.

The mean scores on vital capacity final test of plyometric group, circuit group and control group was found 369.00, 394.6667 and 391.00 respectively. 'F'- ratio was found 4.077, which was significance with the tabular value (3.103) at 0.05 levels. It proved that performance of subjects was improved at significant level by the training given to them. Moreover, adjusted mean of plyometric group, circuit group and control group was found 374.858, 380.715 and 359.094 respectively. 'F'- ratio was found 10.448, which was significance with the tabular value (3.103) at 0.05 levels. Significance between adjusted means of all three groups was found significance. Effectiveness of experimental treatments on plyometric training group and circuit group and adjusted mean difference were examined with critical difference. The detail is presented in table – 2.

Table – 2
Critical difference of mean scores of vital capacity of two experimental groups and a control group

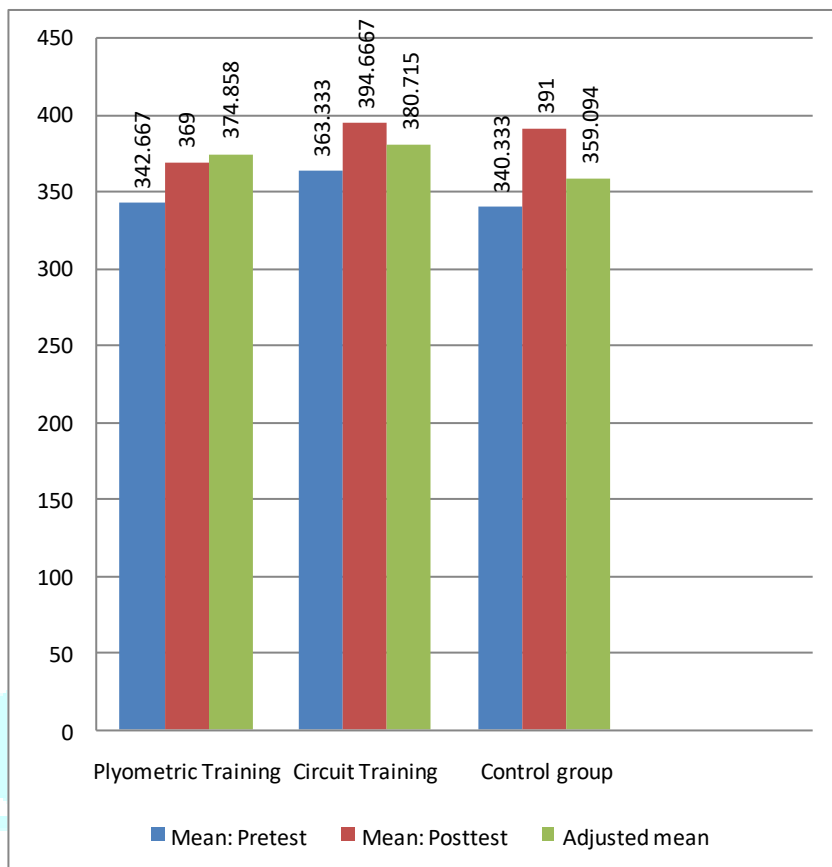
Mean			Mean difference	Critical difference
Plyometric Training	Circuit Training	Control Group		
374.858	380.715		5.857	9.636
374.858		359.094	15.763*	
	380.715	359.094	21.620*	

* Significance at 0.05 levels

Difference between adjusted mean scores of vital capacity of two experimental groups and a control group is seen clearly in table – 2. The difference is found out between plyometric group and circuit group, plyometric group and control group and circuit group and control group and it was compared with critical difference. It is observed in table – 4 that higher significant improvement (21.620) was found in circuit group with compared to the control group. Then, higher significant improvement (21.620) was found in plyometric group with compared to the control group. Significant effect of experimental treatment was found higher in plyometric training group and circuit training group with compared to control group, whereas significant effect of experimental treatment was not found between plyometric group and circuit group.

The mean scores are indicated in graph: 1.

Graph- 1
Mean scores of vital capacity of two experimental groups and a control group



Conclusion :

- Remarkable higher improvement was seen compared to the controlling group in the performance of the subjects' overall oxygen capacity because of plyometric training and circuit training.

Reference :

- Harkishandas Gandhi and others, **Human Physiology, Obstetrics and Child bringing up**, 2nd Ed., Ahmedabad: Parshva Prakashan, 1990.
- Varma, Prakash J., **A Textbook on Sports Statistics**, Gwalior: Venus Publication, 2000.