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Analyzing Changes in Vo_2 Max, Dynamic Strength and Body Fat Percentage through Crossfit Group Training among Athletes

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ABSTRACT

The aim of the study to analyse the changes in vo_2max, dynamic strength and body fat percentage among athletes. Through a structured group training involving high-intensity functional movements, the researcher investigates measureable changes in all the three variables over a specified period. The findings aim of group-based crossfit training for enhancing athlete performance and optimizing body fat percentage.

Keywords- Athlete, Physical Fitness, CrossFit Training, VO_2max, Dynamic Strength, Body Fat Percentage

INTRODUCTION

Sports and games are new trend in India. In India now big companies like reliance, muscle blaze, my protein, Inspire Institute of sports, JSW etc and many universities are going to offer sports sponsorships for professional athletes. So every athlete wants to become professional athlete and get excited for the professional level for his/her bright carrier. They try their best to get enrolled under the elite coaches as well as elite training programmer. Explosive strength training is a part of every game for example cricket, tennis, basketball, boxing, volleyball, athletics, soccer, rugby, kabaddi, wrestling etc. some of games are 80% to 90% dependent on explosive strength training and some are 30% to 50%. The traditional training name to improve explosive strength was plyometrics but now in current era cross fit has taken its place. Cross fit is combination of effective way to get fit. It is a fitness program that combines a wide variety of functional movements into a timed or scored workout. We do pull-ups, squats, pushups, weightlifting, gymnastics, running, rowing, and a host of other movements. Through cross fit we can not only improve explosive strength rather we can improve explosive strength, endurance, speed, coordination, VO_2 max side by side set optimum body fat percentage. Cross fit is a new strength and conditioning program with short but intense daily workouts. These workouts include strength and resistance training with elastic resistance bands. We wish to report a case of a retinal detachment occurring following elastic band breakage during a cross fit workout. Cross fit is one of the biggest booming fitness trends of recent years. It is something of a phenomenal success in terms of how it has promoted the idea of whole body functional fitness. The basic idea rather than specialise and focus in on one fitness area such as running or weight lifting cross fit is about creating a universally athletic all-rounder.

Objectives Of The Study

- To assess the effect of crossfit group training on vo2max among athlete.
- To assess the effect of crossfit group training on dynamic strength among athletes.
- To assess the effect of crossfit group training on body fat percentage among athletes.

Hypotheses Of The Study

1. It is hypothesized that there will be a significant effect of crossfit group training on VO_2 Max among athletes..
2. It is hypothesized there will be significant effect of crossfit group training on dynamic strength among athletes.
3. It is hypothesized there will be a significant effect of crossfit group training on body fat percentage among athletes.

Delimitations Of The Study

1. The study will be delimited with athletes of Lovely Professional University, Phagwara Punjab.
2. Study is delimited to 30 male athletes.
3. The study will be delimited to male 19 to 25 year of age.

Sample Of The Study

Researcher was selected 30 male athletes from Lovely Professional University, Phagawara, Punjab and used simple random sampling technique fot sampling. The researcher taken pre-test before training. The data was collected according to the three variables at the time of pre-test, the data of all athletes took in the morning time after warm-up. The training was scheduled for 12 weeks. After the twelve weeks of training, there was Post-test which was taken in the morning time same as the pre-test. The data was collected and statistically analyses for the results.

DATA ANALYSIS AND INTERPRETATION

Researcher took data of pre-test and used training program of 12 week on basis crossfit group training. After 12 week training took post-test. The responses of the individuals were classified, tabulated and statistically analyzed to test the hypotheses through SPSS(Statistical Package for the Social Sciences).

❖ Vo_2max Of Crossfit Group Training

Table 1 & 2 show the effect of pre-test and post-test of Cross Fit Training on Vo_2max.

Table –1: Paired Samples Statistics of Cross Fit Training Group

Vo_2max	Mean	N	Std. Deviation	Std. Error Mean
Pre-test	29.9577	30	2.77224	.50614
Post-test	44.6386	30	6.51504	1.18948

Table-2: Paired Samples Test of Cross Fit Training Group

	Paired Differences					t	df	Sig. Level
				95% Confidence Interval of the Difference				
Vo_2max	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pre-test & post-test	-14.68087	6.39487	1.16754	-17.06875	-12.29298	12.574	29	.001

Table-1 & 2: shows descriptive statistics for the two datasets. The sample mean and sample standard deviation obtained from the dataset of pre-test for cross fit training group are 29.9577 and 2.77224 respectively. The standard error that is used in calculating the test statistic for the test is found to be 0.50614. The sample mean and sample standard deviation obtained from the dataset of post-test for cross fit training group are 44.6386 and 6.51504 respectively. The standard error from this dataset is 1.18948. A paired sample t-test was conducted to compare the means of the groups. The t-statistic was 12.574, with df=29 ($p<0.001$). The results of the study indicate that there is statistically significant difference between pre-test and post-test of cross fit training on vo_2max.

Hence the hypothesis "*there will be a significant effect of cross fit training on vo_2max among athletes*" **is accepted.**

❖ Dynamic Strength Of Crossfit Group Training

Table 3 & 4 show the effect of pre-test and post-test of Cross Fit Training on Dynamic Strength.

Table –3: Paired Samples Statistics of Cross Fit Training Group

Dynamic Strength	Mean	N	Std. Deviation	Std. Error Mean
Pre-test	.4443	30	.04717	.00861
Post-test	.5730	30	.05603	.01023

Table-4: Paired Samples Test of Cross Fit Training Group

	Paired Differences				t	df	Sig. (2-tailed)
Dynamic Strength	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			

				Lower	Upper			
Pre-test & post-test	.12867	.03954	.00722	.14343	.11390	17.822	29	.001

Table-3 & 4 shows descriptive statistics for the two datasets. The sample mean and sample standard deviation obtained from the dataset of pre-test for cross fit training group are 0.4443 and 0.04717 respectively. The standard error that is used in calculating the test statistic for the test is found to be 0.00861. The sample mean and sample standard deviation obtained from the dataset of post-test for cross fit training group are 0.5730 and 0.05603 respectively. The standard error from this dataset is 0.01023. A paired sample t-test was conducted to compare the means of the groups. The t-statistic was 17.822, with df=29 ($p<0.001$). The results of the study indicate that there is statistically significant difference between pre-test and post-test of cross fit training on dynamic strength.

Hence the hypothesis "Hence the hypothesis "*there will be a significant effect of cross fit training on dynamic strength among athletes*" **is accepted.**

❖ **Body Fat Percentage Of Cross Fit Grpup Training**

Table -5 & 6 show the effect of pre-test and post-test of Cross Fit Training on Body Fat Percentage.

Table – 5: Paired Samples Statistics of Cross Fit Training Group

Body Fat Percentage	Mean	N	Std. Deviation	Std. Error Mean
Pre-test	23.4100	30	.97675	.17833
Post-test	23.1967	30	1.02435	.18702

Table-6: Paired Samples Test of Cross Fit Training Group

	Paired Differences					t	df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
Body Fat Percentage	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Lower**	**Upper**			
Pre-test & post-test	.21333	.15698	.02866	.15471	.27195	7.44	29	0.001

Table-5 & 6: shows descriptive statistics for the two datasets. The sample mean and sample standard deviation obtained from the dataset of pre-test for cross fit training group are 23.4100 and .97675 respectively. The standard error that is used in calculating the test statistic for the test is found to be .17833. The sample mean and sample standard deviation obtained from the dataset of post-test for cross fit training group are 23.1967 and 1.02435 respectively. The standard error from this dataset is .18702. A paired sample t-test was conducted to compare the means of the groups. The t-statistic was 7.44, with df=29 ($p<0.001$). The results of the study indicate that there is statistically significant difference between pre-test and post-test of cross fit training on body fat percentage.

Hence the hypothesis "*there will be a significant effect of cross fit training on body fat percentage among athletes*" **is accepted.**

CONCLUSION

The study was concluded by the researcher that 12 weeks of crossfit group training has positive effect on athlete.

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