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Effect Of Ballistic Exercises And Cross Fit Training In Combination Of Drills Practice With Strobe Glass On Explosive Strength Among Men Volleyball Players

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ABSTRACT

The study was to examine the isolated and combined effect of ballistic exercises and cross fit training in combination of drills practice with strobe glass on explosive strength performance among men volleyball players. Total recruited randomly N=100 (hundred) college level volleyball players their age period ranged from 18 years to 25 years as per subject's school records and, who at least participated college level volleyball games competitions. The chosen volleyball players was randomly recruited into four groups each group n=25 volleyball players i.e. empirical groups I volleyball players underwent isolated ballistic exercises in combination of volleyball skill base drill with strobe glass (BESV = 25), empirical group II volleyball players underwent isolated cross fit training in combination of volleyball skill base drill with strobe glass (CFSV = 25), empirical group III underwent: volleyball players underwent combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass (CBCV = 25) and control group volleyball players (NTVP = 25) . NTVP was practiced only their respective specialization game. The training period was fixed for 12- week's duration and four sessions in a week. The measurement of explosive strength performance scores was collected through jump and reach test (Meters) before and after the completion of specific training. The collected score's were analyzed through ANCOVA and level of significant was restricted at 0.05 levels. The study found that isolated, combined ballistic exercises and cross fit training in combination of volleyball drills practice with strobe glass had positive significant impact to gain in vertical direction explosive strength performance of volleyball players of three empirical group's players comparative to control group.

Keywords: – ballistic, cross fit, Exercises, strobe glass, explosive, strength and volleyball

Introduction:

Cross fit workout is an intensive training program that combines strength, endurance and metabolic elements that is made up of functional movement performed at a high intensity level to enhance overall physical fitness and more of an athletes. In this workouts athletes performing various exercises at high intensity level and for short durations time often include functional exercises that mimic movements in everyday life i.e. squats, overhead press, rowing, pushups, jumps, explosive bodyweight movements, kettle bells and Olympic weightlifting for making each session unique and challenging session. Cross fit training goal is to improve athlete's physical fitness level, increase muscular strength, endurance, speed and overall conditioning of athlete's body for better performance. To reap greater benefit from cross fit training the athletes gradually increase intensity and load to avoid injuries and overexertion.

Sports strobe glasses are a modern technological marvel eyewear consisted of liquid crystal lenses to intermittently block and unblock vision over defined periods of time. They are used in stroboscopic visual training for improving visual and cognitive skills. The glasses are perfect for athletes who wish to improve their brain's speed and efficiency, especially in sports. The strobe sports training glasses work to fit comfortably over the user's eyes with minimal disturbance. The beneficial impacts of sports strobe glasses are improving reaction time, enhancing visual acuity, develop hand and eye coordination by training the brain to process visual information more quickly.

Statement of the Research Problem:

To analyze the “Effect of ballistic exercises and cross fit training in combination of drills practice with strobe glass on explosive strength performance among men volleyball players”.

Objectives of this research study

1. The primary objective of this research study is to evaluate the 12-weeks influence of ballistic exercises and cross fit training in combination of drills practice with strobe glass on explosive strength performance among men volleyball players.
2. The secondary objective of this research are
 - To compare the selected training methods between isolated and combined training on explosive strength performance among men volleyball players.
 - To judge the best suitable training program among selected three treatments for enhancement of explosive strength performance of volleyball players.

Research Hypothesis:

- There will be a significant improvement in score of explosive strength performance of empirical group's volleyball players after the twelve weeks impact of isolated and combined ballistic exercises and cross fit training in combination of drills practice with strobe glass when compared with control group volleyball players.
- The combined ballistic exercises and cross fit training in combination of drills practice with strobe glass will be more effective than the isolated training program.

Methodology:

The study was study was to measure the isolated and combined effect of ballistic exercises and cross fit training in combination of drills practice with strobe glass on explosive strength performance among men volleyball players. Total recruited randomly N=100 (hundred) college level volleyball players their age period ranged from 18 years to 25 years as per subject's school records and, who at least participated college level volleyball games competitions. The chosen volleyball players was randomly recruited into four groups each group n=25 volleyball players i.e. empirical groups I volleyball players underwent isolated ballistic exercises in combination of volleyball skill base drill with strobe glass (BESV = 25), empirical group II volleyball players underwent isolated cross fit training in combination of volleyball skill base drill with strobe glass (CFSV = 25), empirical group III underwent: volleyball players underwent combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass (CBCV = 25) and control group volleyball players (NTVP = 25) . NTVP was practiced only their respective specialization game. The training period was fixed for 12- week's duration and four sessions in a week. The measurement of explosive strength performance scores was collected through jump and reach test (Meters) before and after the completion of specific training. The collected score's were analyzed through ANCOVA and level of significant was restricted at 0.05 levels.

Table: I

ANALYSIS OF COVARIANCE FOR EXPLOSIVE STRENGTH PERFORMANCE – JUMP AND REACH TEST (METERS) OF THE BESV, CFSV, CBCV AND NTVP GROUPS FOR VOLLEYBALL PLAYERS

Groups	BESV	CFSV	BCSV	NTVP	SOV	Sum of squares	df	Mean Square	F' Ratio
Pre test mean	2.336	2.351	2.350	2.344	B	0.003	3	0.001	1.556 ^{NS}
SD	0.029	0.026	0.027	0.022	W	0.069	96	0.001	
Post test mean	2.777	2.596	2.839	2.349	B	3.629	3	1.210	413.301*
SD	0.051	0.060	0.067	0.029	W	0.281	96	0.003	
Adjusted mean	2.780	2.795	2.838	2.350	B	3.631	3	1.210	416.201*
					W	0.276	95	0.003	
Mean difference	+0.441	+0.245	+0.489	+0.005	-	-	-	-	-

Note : Table F-ratio book value at 0.05 level of confidence for 3 and 96 (df) =2.68, 3 and 95 (df) =2.68

***Significant**

BESV: Isolated ballistic exercises in combination of volleyball skill base drill with strobe glass.

CFSV: Isolated Cross fit training in combination of volleyball skill base drill with strobe glass.

BCSV: Combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass.

NTVP: Non training group men volleyball players.

The above table-I shows that there is a significant difference on vertical direction legs explosive strength performance among the four groups such as isolated ballistic exercises in combination of volleyball skill base drill with strobe glass [BESV], isolated Cross fit training in combination of volleyball skill base drill with strobe glass [CFSV] and combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass [BCSV] and non training group men volleyball players [NTVP]. Since the 'F' value required being significant at 0.05 level for 3, 96 d/f and 3, 95 are 2.68, but the computation values of explosive strength performance post and adjusted posttest 'F' values are 413.301 and 416.201 respectively. Which are greater than the tabulated value, it shows that training is effective for positive changes in legs explosive strength performance. Since the obtained 'F' ratio is found significant.

TABLE: 2

**THE EXPLOSIVE STRENGTH PERFORMANCE – JUMP AND REACH TEST (METERS)
RESULTS OF SCHEFFE'S METHOD TEST MEAN DIFFERENCES BETWEEN BESV, CFSV,
CBCV and NTVP GROUPS FOR VOLLEYBALL PLAYERS**

BESV	CFSV	BCSV	NTVP	MD	CI
2.780	2.595	-	-	0.185*	0.0439
2.780	-	2.838	-	0.058*	
2.780	-	-	2.350	0.43*	
-	2.595	2.838	-	0.243*	
-	2.595	-	2.350	0.245*	
-	-	2.838	2.350	0.488*	

Note: * Significant & NS: No significant

BESV: Isolated ballistic exercises in combination of volleyball skill base drill with strobe glass.

CFSV: Isolated Cross fit training in combination of volleyball skill base drill with strobe glass.

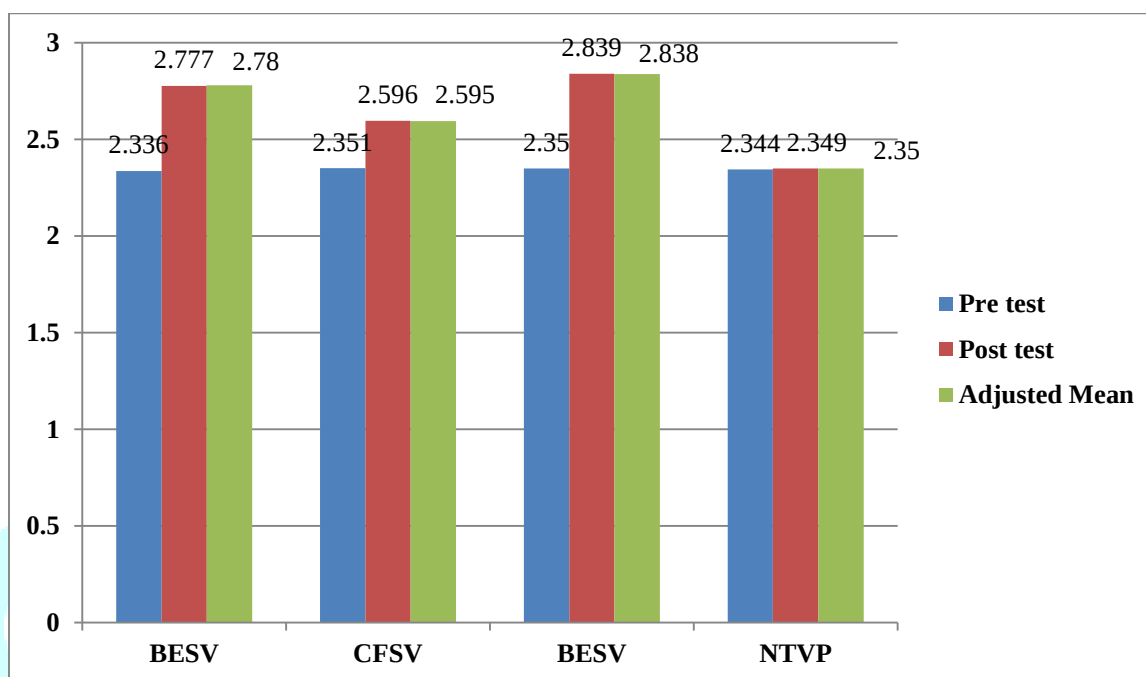
BCSV: Combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass.

NTVP: Non training group men volleyball players.

In above table 2 adjusted final mean variations between the isolated ballistic exercises in combination of volleyball skill base drill with strobe glass [BESV] and isolated cross fit training in combination of volleyball skill base drill with strobe glass [CFSV], isolated ballistic exercises in combination of volleyball skill base drill with strobe glass [BESV] and combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass [BCSV], isolated ballistic exercises in combination of volleyball skill base drill with strobe glass [BESV] and non training group men volleyball players [NTVP], isolated cross fit training in combination of volleyball skill base drill with strobe glass [CFSV] and combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass [BCSV], isolated cross fit training in combination of volleyball skill base drill with strobe glass [CFSV] and non training group men volleyball players [NTVP] & combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass [BCSV] and non training group men volleyball players [NTVP] are 0.185, 0.058, 0.430, 0.243, 0.245 and 0.488. These computation adjusted final mean variations values are larger than calculated formula CI value 0.0439. Hence investigator recorded significant variations resulted between training groups and control groups men volleyball players after completion of empirical period time.

The prior, final and adjusted post scores results mean of the NTBP BESV, CFSV, BCSV and NTVP men volleyball players groups for vertical direction legs explosive strength – jump and reach test (meters) performance of men volleyball players clearly represented in bar diagram figure: 1.

FIGURE: 1 GRAPHICAL REPRESENTATION OF CHANGES IN MEAN DIFFERENCE OF THE BESV, CFSV, BCSV AND NTVP GROUPS FOR LEGS EXPLOSIVE STRENGTH PERFORMANCE – JUMP AND REACH TEST (METERS) TEST (POINTS) ON MEN VOLLEYBALL PLAYERS



BESV: Isolated ballistic exercises in combination of volleyball skill base drill with strobe glass.

CFSV: Isolated Cross fit training in combination of volleyball skill base drill with strobe glass.

BCSV: Combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass.

NTVP: Non training group men volleyball players.

Discussion on Hypothesis:

- The first hypotheses stated that there will be a significant improvement in score of explosive strength performance of empirical group's volleyball players after the twelve weeks impact of isolated and combined ballistic exercises and cross fit training in combination of drills practice with strobe glass when compared with control group volleyball players. The statistical analysis proved that isolated, combined ballistic exercises and cross fit training in combination of drills practice with strobe glass significantly positively gain in the legs explosive strength performance of volleyball players. Hence research first hypothesis accepted.
- The second hypotheses stated that combined ballistic exercises and cross fit training in combination of drills practice with strobe glass will be more effective than the isolated training program. The statistical analysis proved combined training is superior to isolated training method. Hence research second hypotheses accepted.

Discussion and Findings:

The impact of 12-weeks isolated and combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass significantly approved for positive gain in legs explosive strength performance. The list of empirical studies results that cover explosive strength performance are Eduardo et al., (2019) study demonstrated that compound training and complex training strategies are beneficial for gain in lower body explosive power towards vertical jump performance level. Ana Filipa et al., (2019) concluded that plyometric training program strategies seems to be beneficial for positive gain in the lower body explosive power towards vertical jump distance performance of volleyball players. Rodrigo et al., (2021) concluded that plyometric exercises are effective in enhancing spike jump and counter movement jump level with arm swings of volleyball players. Goudas et al., (2020) outcomes that the TRX-training, combined with plyometric exercises and resistance training intervention significantly achieved gain towards vertical direction jumping ability of trained group volleyball players. Vladan et al., (2008) determined that plyometric exercises for 8- weeks is an effective method to develop positively the two foot takeoff block jump, right foot takeoff block jump, two foot takeoff spike jump, left foot takeoff spike jump, standing triple jump, left foot takeoff block jump and standing depth jump performance level of volleyball players.

Conclusions:

The study concluded that 12-weeks experiment of isolated ballistic exercises in combination of volleyball skill base drill with strobe glass, isolated cross fit training in combination of volleyball skill base drill with strobe glass and combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass training methods are effective for increasing the agility speed of volleyball players comparative with non training group men volleyball players. Hence combined ballistic exercises and cross fit training in combination of volleyball skill base drill with strobe glass training methods is able to add more beneficial leg strength power than isolated ballistic exercises in combination of volleyball skill base drill with strobe glass and isolated cross fit training in combination of volleyball skill base drill with strobe glass to cover more distance in vertical direction legs explosive strength – jump and reach test (Meters) performance. Finally, isolated ballistic exercises in combination of volleyball skill base drill with strobe glass is able to add more beneficial strength power in legs than isolated cross fit training in combination of volleyball skill base drill with strobe glass to cover more distance in vertical direction legs explosive strength – jump and reach test (Meters) performance.

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