REVIEW OF RESEARCH
IMPACT FACTOR : 5.7631(UIF) UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X
VOLUME - 8 | ISSUE - 6 | MARCH - 2019

EFFECT OF SKILL TRAINING AND PLYOMETRIC TRAINING ON SELECTED MOTOR FITNESS COMPONENTS AMONG SCHOOL VOLLEYBALL PLAYERS

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ABSTRACT :

The reason for the investigation was to discover the impact of impact of ability preparing and plyometric preparing on chosen engine wellness parts among school volleyball players. To achieve this purpose, 36 male volleyball players studying in the various schools from Tirupathi, Andhra Pradesh were selected as subjects. They were divided into three equal groups and each group consisted of 12 subjects. Group-I performed skill training, group-II performed plyometric training and group-III acted as control. The preparation time frame for both the test bunches was twelve weeks and control aggregate who did not take part any uncommon preparing separated from the normal exercises. The dependent variables tested were speed, muscular strength and explosive power. The gathered information from these three gatherings earlier and after the preparation time frame were factually inspected for noteworthy distinction assuming any, by applying Analysis of Covariance (ANCOVA). Since three groups were involved, Scheffe S test was used as post-hoc test to find out any difference between the groups. The consequence of the examination demonstrates that there was huge enhancement for chosen engine wellness parts, for example, speed, strong quality and touchy intensity of school volleyball players because of the impact of aptitude preparing and plyometric preparing.

KEYWORDS : *Skill training, plyometric training and motor fitness components.*

INTRODUCTION:

Though the volleyball game seems to be simple game but the recent trend indicates that it is not so simple but it has very complex skills and fast game. Volleyball game requires comprehensive ability including physical, technical, mental and tactical abilities. Among them physical abilities of players exert marked effects on the skills of the players themselves and the tactics of the team. The skills like higher attack, powerful jumping-serve, attack from the back row and aggressive blocking are now widely used by volleyball players. All these bring forward greater demand for specific physical fitness and physique of volleyball players. In volleyball, technical and tactical skills, anthropometric characteristics and individual physical performance capacities are most important factors that contribute to the success of a team in competitions (Hakkinen, 1993).

Hence, like any athlete, volleyball players also need to follow conditioning program that aims towards them peaking at certain stages of the year. By concentrating on systematic training workouts throughout the off season will enable the volleyball players to perform with greater ability and reduce

risk of injury during the competitive season. Skill and plyometric training are commonly employed in athletic conditioning, setting to enhance volleyball playing ability.

Fitness and conditioning are important elements to success in the game of volleyball. It is easy for energy to be drained toward the end of a volleyball match if the fitness level is lacking. In games where two teams are evenly matched, the one with the best overall conditioning often prevails. Fatigue in a volleyball match can lead to mistakes, and mistakes can lead to a loss. Skill-based conditioning drills follow work to rest ratios similar to competition, incorporate rapid starts, stops and changes of direction close to game speed, and also include technical skills (serving, spiking, blocking, passing, etc). These types of drills can also include "open-chain" activities like small-field scrimmages and different types of competitions. Limited research has been conducted using volleyball players and skill-based conditioning strategies. Skills-based conditioning is centered on a skill (or set of skills) as the objective. The focus is on skill development with the nature of the drill manipulated to achieve a desirable conditioning effect.

Plyometric preparing includes and utilizes rehearsing plyometric developments to toughen tissues and train nerve cells to animate a particular example of muscle constriction so the muscle produces as solid a withdrawal as conceivable in the most brief measure of time. A plyometric compression includes initial a fast muscle stretching development (unusual stage), trailed by a short resting stage (amortization stage), at that point a hazardous muscle shortening development (concentric stage), which empowers muscles to cooperate in doing the specific movement. Plyometric preparing connects with the myotatic reflex, which is the programmed withdrawal of muscles when their stretch tangible receptors are invigorated.

Plyometric practices are particular, high force preparing strategies used to create athletic power (quality and speed). Plyometric training involves high-intensity, explosive muscular contractions that invoke the stretch reflex (stretching the muscle before it contracts so that it contracts with greater force). The most common plyometric exercises include hops, jumps and bounding movements. One popular plyometric exercise is jumping off a box and rebounding off the floor and onto another, higher box. These exercises typically increase speed and strength and build power.

The skill training and plyometric training programmes have become highly structured training for enhancement of motor fitness and physiological capacities. It has vastly different training effects depending upon the intensity and duration of the work and rest period. More research is required concerning the variation in skill training and plyometric training and its effects. The applicability of this method of training to improve the motor fitness components is not yet completely known. Consequently, the aim of the present study is to compare the skill training and plyometric training for differences in their effectiveness on selected motor fitness components of school volleyball players.

METHODOLOGY

Subjects and Variables

To achieve this purpose, 36 male volleyball players studying in various schools from Tirupathi, Andrapradesh were selected as subjects. They were divided into three equal groups and each group consisted of 12 subjects. The chose ward factors speed, strong quality and unstable power were surveyed by leading the accompanying test things.

Table – I: Dependent Variables and Tests

Sl.No	Variables	Test Items
1	Speed	50m run
2	Muscular strength	Sit- ups
3	Explosive power	Sargent jump

Training Programme

In this study, training will be done under close supervision with frequent adjustments in training intensity to maintain the desired training stimulus. The training programme is scheduled for one session a day for both skill and plyometric training groups. Each session was last sixty minutes approximately including warming up and warming down. Amid the preparation time frame, the exploratory gatherings experienced their particular preparing four days out of each week for twelve weeks. The experimental group-I performed skill training and experimental group-II performed plyometric training. Skill training drills follow work to rest ratios similar to competition, incorporate rapid starts, stops and changes of direction close to game speed, and also include technical skills. A 12-week plyometric training program was developed using four training sessions per week. The training program was based on recommendations of intensity and volume from Piper and Erdmann (1998), using similar drills, sets, and repetitions. Training volume ranged from 90 foot contacts to 140 foot contacts per session. The experimental groups underwent their training under the instruction and supervision of the investigator.

Statistical Technique

The data were collected on selected dependent variables such as speed, muscular strength and explosive strength at before and after the twelve weeks of training as pre and post test from both experimental and control groups. Investigation of covariance (ANCOVA) was connected to discover noteworthy distinction if any between the trial and control gathering.

RESULTS

The influences of skill training and plyometric training on each of the selected dependent variables were analyzed and the obtained results are presented below.

Table–II: Analysis of Covariance on Speed, Muscular Strength and Explosive power of Experimental and Control Groups

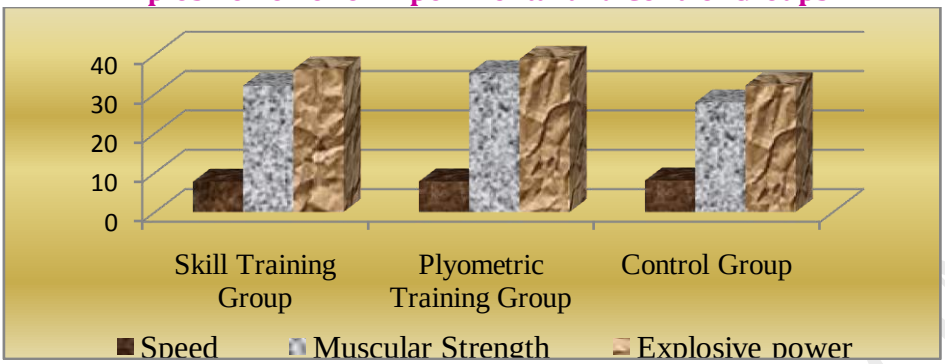
Variables	Skill Training Group	Plyometric Training Group	Control Group	S o V	Sum of Squares	df	Mean Squares	'F' ratio
Speed	7.67	7.72	7.97	B	1.60	2	0.80	26.67*
				W	1.04	32	0.03	
Muscular strength	32.10	35.21	27.83	B	522.17	2	261.09	34.77*
				W	240.29	32	7.51	
Explosive power	36.21	38.83	32.15	B	409.24	2	204.62	33.60*
				W	194.72	32	6.09	

(Required table value for significance at 0.05 level of confidence with degrees of freedom 2 and 32 is 3.29)
**Significant at .05 level of confidence*

The obtained 'F' ratio values 26.67, 34.77 and 33.60 of speed, muscular strength and explosive power are greater than the required table value of 3.29 for the degrees of freedom 2 and 32 at 0.05 level of confidence. Hence, it was concluded that significant differences exist between the adjusted post test means of experimental and control groups on speed, muscular strength and explosive power.

The adjusted post test mean values on speed, muscular strength and explosive power of experimental and control groups are graphically represented in figure-I.

Figure-I: Diagram Showing the Adjusted Post Test Mean Values on Speed, Muscular Strength and Explosive Power of Experimental and Control Groups



Since, the got 'F' proportion an incentive in the balanced post test implies is observed to be critical, the Scheffe'S test is connected as post hoc test to discover the matched mean distinction, and it is exhibited in table-III.

Table – III: Scheffës Test for the Difference between the Adjusted Post-Test Mean of Selected Motor Fitness Components

Variables	Adjusted Post-test Mean				
	Skill Training Group	Plyometric Training Group	Control group	Mean Difference	Confidence interval at .05 level
Speed	7.67	7.72		0.05	0.18
	7.67		7.97	0.30*	0.18
		7.72	7.97	0.25*	0.18
Muscular strength	32.10	35.21		3.11*	2.87
	32.10		27.83	4.27*	2.87
		35.21	27.83	7.38*	2.87
Explosive power	36.21	38.83		2.62*	2.58
	36.21		32.15	4.06*	2.58
		38.83	32.15	6.68*	2.58

**Significant*

The Scheffe's post hoc analysis proved that there were significant mean differences exist between experimental and control groups speed, muscular strength and explosive power since, the mean differences are higher than the confident interval values at 0.05 level of confidence. When looking at the test bunches critical contrasts exist among ability and plyometric preparing bunches in improving solid quality and touchy power be that as it may, no huge exist between trial bunches in improving pace.

Henceforth, it was inferred that because of the impact of aptitude and plyometric preparing the speed, strong quality and hazardous intensity of the school volleyball players was essentially improved. It was additionally presumed that plyometric preparing was fundamentally superior to anything aptitude preparing in improving strong quality and touchy power in any case, no critical contrasts were found among ability and plyometric preparing bunches in improving pace.

DISCUSSION

A number of studies demonstrate the effectiveness of skill and plyometric training compared to non- exercising control groups. Trajkovic et al., (2012) documented that general conditioning along with specific volleyball conditioning is necessary in the preseason period for the development of the

lower-body strength, agility and speed performance in volleyball players. Skills learned from skill-based conditioning games are more likely to be applied in the competitive environment, their use may provide a practical alternative to traditional conditioning for improving the physiological capacities and playing performance of rugby league players (Gabbett, 2008). Gabbett (2006) also suggests that not only specific fitness be improved through skill-based conditioning, but also that the associated skill practice is transferable to the match situation. Arockiaraj, Muthueleckuvan and Veeramani (2012) found significant improvement on speed, forearm pass and overhead pass due to the effect of skill based conditioning among male volleyball players.

Although various training methods, including heavy-resistance training, explosive-type resistance training, have been effectively used for the enhancement of vertical jump performance, most coaches and researchers seem to agree that plyometric training is a method of choice when aiming to improve vertical jump ability and leg muscle power. (Ebben & Blackard,2001; Ebben, Carroll & Simenz,2004; Markovic *et al*., 2007). Effects of plyometric training on vertical jump performance have been extensively studied. Numerous studies on plyometric training have demonstrated improvements in the vertical jump height (Kotzamanidis, 2006; Matavulj *et al.,* 2001; Fatouros *et al.,*2000; Chimera *et al.,* 2004; Tricoli *et al*.,2005)

A wide variety of training studies shows that plyometric can improve performance in vertical jumping, long jumping, sprinting and sprint cycling. It also appears that a relatively small amount of plyometric training is required to improve performance in these tasks. Just one or two types of plyometric exercise completed 1-3 times a week for 6-12 weeks can significantly improve motor performance (Blackey & Southard, 1987; Gehri *et al*., 1998; Matavulj *et al*., 2001). In addition, several studies on plyometric training have demonstrated that a significant increase in vertical jump height of ~10% was accompanied with similar increase in sport-specific jumping, (Bobbert, 1990; Little, Wilson & Ostrowski, 1996) sprinting (Chimera *et al.,* 2004; Kotzamanidis, 2006) and distance-running performance. Also consistent with previous studies Abass (2009) found that plyometrics exercises (BWT) with depth jumping and rebound jumping characteristics are best used in developing muscle strength of the lower extremities.

CONCLUSIONS

The aftereffects of the investigation appeared there was critical enhancement for chosen engine wellness segments, for example, speed, strong quality and unstable intensity of school volleyball players because of the impact of ability and plyometric preparing. It was additionally reasoned that plyometric preparing was altogether superior to anything ability preparing in improving strong quality and dangerous power nonetheless, no critical contrasts were found among expertise and plyometric preparing bunches in improving pace.

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