

**INFLUENCE OF CONVENTIONAL TRAINING PROGRAMME
COMBINED WITH LADDER TRAINING ON SELECTED PHYSICAL
FITNESS AND SKILL PERFORMANCE VARIABLES OF COLLEGE
LEVEL BADMINTON PLAYERS**

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ABSTRACT

The purpose of the study was to find out the influence of conventional training programme combined with ladder training on selected physical fitness and skill performance variables of college level badminton players. For this study twenty four men Inter-collegiate badminton players were randomly selected from various colleges from Coimbatore city, Tamil Nadu. They belonged to the age group of 17 to 28 years and they were divided into two equal groups namely, the experimental group I (Conventional training programme- CT) and the experimental group II (Conventional training combined with ladder training-CTLT). The subjects were tested to find out Speed, Agility, Long serve and Forehand Clear. The experimental group I participated in conventional training programme and experimental group II participated in conventional training combined with ladder training for the period of twelve weeks. The data were collected before and after the training period and the pretest, posttest and the adjusted posttest were analyzed by Analysis of Covariance (ANCOVA). The level of significance for the study was chosen as 0.05. The study revealed that the above said criterion variables had significant improvement due to the influence of Conventional training combined with ladder training than the Conventional training programme of college level badminton players.

Key words: Badminton, conventional training, ladder training, speed, agility, forehand clear and long serve.

INTRODUCTION:

In the present scenario participation in sports becomes a vital nutrient for human survival. In sports enormous modern technologies and training methods are used by the players and coaches to improve their sports performance. Participation in sports is a great way of staying active and offers wonderful rewards for mental health.

The objective of training competitive sport is to prepare athletes for the achievement of outstanding athletic performance in competition. For this reason the main tasks of athletic training are based mainly on the specific requirements of sports competitions but also on the amount of the training itself. Sports training is the total process of preparation of a sportsman, through different means and forms for better performance. The Sports performance is the result and expression of the total personality of the sportsman. The educational aspect of sports training is unfortunately overlooked by coaches and physical education teacher in India. (Hardayal Singh, 1997).

Conventional (traditional) exercise programs are commonly thought to involve exercises that isolate specific muscles in order to increase strength more effectively (McGill et al. 2009). In badminton, the players and coaches are following some of the conventional training items to improve their physical fitness and skills like flexibility training, aerobic training, strength training, speed training, power training, psychological skill training and technical training.

Past research has demonstrated a similar or, in some cases, greater improvement in overall muscular function in young and older adults following functional versus Conventional (traditional) training programs (Kibele & Behm 2009; de Vreede et al. 2005). In badminton, the players and coaches are conventionally following some of the training items to improve their physical fitness and skills like flexibility training, Aerobic training, Strength Training, speed training, power training, psychological skill training and technical training.

Ladder training will improve our feet coordination. Completing different moves through agility ladder simulators the movements required during badminton competition. Ladder training is active and indispensable to increase foot speed, agility, timing and coordination for the badminton players. This training should be specific to game situations. For example, badminton players can perform side steps with a speed ladder and comeback the shuttlecock. A player can also sprint towards a box, coming back the shuttlecock, backtrack towards another box and return the shuttlecock again. Ladder training allows coaches and players to be imaginative and these drills can also give a lot of pleasant.

Badminton players need to be fit in that the time the ball remain in play, average length of rallies and distance travelled by players during the game are all significantly higher in badminton. In

other words, the endurance level of badminton players should be very high. Also it is worthwhile remembering that badminton is significantly faster than most of the games, so the player needs to be in peak fitness to run, stretch, dive, bend, jump and reach the birdie with lightning quick reflexes and body balance.

To play the game effectively, a player can use various drills and strokes. Thus it is very important for a player to determine in advance which stroke his opponent player will use and where the shuttle will land on his court. He should always remain prepared and be very alert on the court. He can use sprints, leaps, lunges, twists, turns, stretches and hitting actions. To hit the shuttle powerfully or softly, a player requires strength, endurance, speed, agility, flexibility and presence of mind. The sheer pleasure of the variety of movement has added an appeal for the player. The game involves a challenge. To put the opponent player under pressure, a player has to practice various skills and drills. It is a very good source of enjoyment, but later courts become field of battles on which players attempt to find every chance of scoring more points than the opponent. Thus, the basic aim of every player is to hit the shuttle in such a way that the opponent finds it difficult to return it, and by this, score more points. (PriyankaNarang, 2001)

Great agility, quickness, and reaction are essential to be successful in badminton as well. Lower body strength and endurance are important to the badminton player. A strong swing requires good upper body strength, as well. Core strength and endurance help with balance which improves overall agility. A conditioning programme that includes an overall cardiovascular programme, a solid strength component, and good flexibility training will keep the badminton player healthy and performing at his or her peak. Badminton compares favorably with any sport, certainly with any racket sport, judging by the sheer physical exertion and mental concentration involved. Badminton is one of the fastest racket sports and the fastest racket shot has been recorded in badminton.

OBJECTIVE:

To assess the influence of conventional training programme combined with ladder training on selected physical fitness and skill performance variables of college level badminton players.

HYPOTHESIS:

It was hypothesized that there may not be significant difference between conventional training programme and conventional training combined with ladder training on selected physical fitness and skill performance variables of college level badminton players.

METHODOLOGY:

SELECTION OF SUBJECTS

For this study, thirty six intercollegiate men badminton players were selected as subjects. They were selected from various colleges in Coimbatore city, Tamil Nadu. The age of the subjects ranged from 20 to 25 years.

SELECTION OF VARIABLES

The investigator reviewed the scientific literature pertaining to the study from books, journals, periodicals, magazines, research papers, unpublished theses, (resulting from the review of literature) in consultation with the experts and consideration of the feasibility of the study, the following independent and dependent variables were selected.

INDEPENDENT VARIABLES

The data on the physical fitness, psychophysiological and skill performance variables were collected from three groups. The selected groups are given below:

- ❖ Conventional training (CT)
- ❖ Conventional training combined with ladder training (CTLT)
- ❖

DEPENDENT VARIABLES

The following physical fitness, psychophysiological and skill performance variables were selected as dependent variables for the study:

Physical fitness variables

- ❖ Speed
- ❖ Agility

Skill performance variables

- ❖ Long serve

- ❖ Forehand clear

EXPERIMENTAL DESIGN:

For this study twenty four men Inter-collegiate badminton players were randomly selected from various colleges from Coimbatore city, Tamil Nadu. They belonged to the age group of 17 to 28 years and they were divided into two equal groups namely, the experimental group I (Conventional training programme- CT) and the experimental group II (Conventional training combined with ladder training-CTLT). The subjects were tested to find out Speed, Agility, Long serve and Forehand Clear. The experimental group I participated in conventional training programme and experimental group II participated in conventional training combined with ladder training for the period of twelve weeks. The data were collected before and after the training period and the pretest, posttest and the adjusted posttest were analyzed by Analysis of Covariance (ANCOVA). The level of significance for the study was chosen as 0.05.

TOOLS AND TECHNIQUES:

- ❖ Speed was measured by 50 meters run test.
- ❖ Agility was measured by semo agility test.
- ❖ Long serve was measured by Poole long serve test.
- ❖ Forehand Clear was measured by Poole Forehand clear test.

TRAINING SCHEDULE FOR CONVENTIONAL TRAINING PROGRAMME

MESO CYCLE PLAN - SPECIFIC PREPARATORY PERIOD													
TRAINING COMPONENTS AND PERCENTAGE OF TRAINING													
S.No	Training	Weeks											
		1	2	3	4	5	6	7	8	9	10	11	12
1	warm up	5	5	5	5	5	5	5	5	5	5	5	5
2	Flexibility training												
	A. General flexibility	5	5	5	5	5	5						
	B. Specific flexibility	10	10	10	10	10	5	10	5	5	5	5	5
3	Endurance training												
	A. General endurance	15		15		10							
	B. Specific endurance	10		10		5		10		10			
4	Speed training												
	A. Reaction ability		15		15		5						
	B. Movement speed		10		10		15		10		5	5	
5	Specific strength training	20	20	20	20	15	10	5	5	5	5		
6	Technique and tactic training	10	10	10	10	20	20	30	30	30	30	30	30
7	Coordinative ability training	10	10	10	10	10	10	5	5	5	5	5	5
8	Mental training					5	5	10	10	10	10	10	10
9	Practice match	5	5	5	5	10	15	20	25	25	30	35	40
10	Recreational games	5	5	5	5								
11	Warm down	5	5	5	5	5	5	5	5	5	5	5	5
	Total %	100	100	100	100	100	100	100	100	100	100	100	100
	Weekly average load	Low	Light	Med	Med	Sub. Max	Light	Light	Med	Med	Max	Max	Light
Low Intensity=1 week ;Light Intensity=4 weeks ; Medium Intensity=4 weeks; Sub maximum Intensity= 3 weeks Adaptation= 1 week; Loading=9 weeks; Recovery=2 weeks (1:9:2); 100% = 540 minutes													

TRAINING SCHEDULE FOR CONVENTIONAL TRAINING COMBINED WITH LADDER TRAINING

MESO CYCLE PLAN - SPECIFIC PREPARATORY PERIOD													
TRAINING COMPONENTS AND PERCENTAGE OF TRAINING													
S.No	Training	Weeks											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Warm up	5	5	5	5	5	5	5	5	5	5	5	5
2	Flexibility training												
	A. General flexibility	5	5	5	5	5	5						
	B. Specific flexibility	5	5	5	5	5	5	10	10	10	10	10	5
3	Endurance training												
	A. General endurance	20		20		10							
	B. Specific endurance	5		5		10		10					
4	Speed training												
	A. Reaction ability		10		10		5						
	B. Movement speed		15		10		10		5				
5	Specific Strength training	20	20	20	20	10	10	5	5	5	5		
6	Ladder training	10	10	10	10	10	10	10	15	15	10	10	10
7	Technique and tactic training	10	10	10	15	20	20	25	25	30	30	30	30
8	Coordinative ability training	5	5	5	5	5	5	5	5	5	5	5	
9	Mental training					5	5	5	5	5	5	10	10
10	Practice match	5	5	5	5	10	15	20	20	20	25	25	35
11	Recreational games	5	5	5	5								
12	Warm down	5	5	5	5	5	5	5	5	5	5	5	5
	Total %	100	100	100	100	100	100	100	100	100	100	100	100
	Weekly average load	Low	Light	Med	Med	Sub. Max	Light	Light	Med	Med	Sub. Max	Sub. Max	Light
Low Intensity= 1 ; Light Intensity=4 weeks ; Medium Intensity=4 weeks ; Sub maximum Intensity= 3 weeks Adaptation= 1 week; Loading=9 weeks; Recovery=2 weeks (1:9:2); 100% = 540 minutes													

STATISTICAL TECHNIQUE:

The following statistical procedure was employed to estimate the influence of conventional training programme combined with ladder training on selected physical fitness and skill performance variables of college level badminton players.

Analysis of co-variance statistical technique was used to test the adjusted post-test mean differences among the experimental group I and the experimental group II.

RESULTS:

TABLE-I
COMPUTATION OF ANALYSIS OF COVARIANCE OF CONVENTIONAL TRAINING PROGRAMME AND CONVENTIONAL TRAINING COMBINED WITH LADDER TRAINING GROUPS ON PHYSICAL FITNESS VARIABLES

Variables	Adjusted Post-Test Means		Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
	CT Group	CTLT Group					
Speed	7.23	6.77	BG	1.26	1	1.26	18.65*
			WG	1.42	21	0.07	
Agility	13.23	12.45	BG	3.61	1	3.61	40.14*
			WG	1.89	21	0.09	

BG- Between Group Means : WG- Within Group Means : df- Degrees of Freedom:

* -

Significant : (Table Value for 0.05 Level for df 1 & 21 =4.32)

RESULTS OF SPEED:

An examination of table –I indicated that the adjusted post-test means of conventional training programme group, and conventional training combined with ladder training group were 7.23 and 6.77 respectively. The obtained F-ratio for the adjusted post-test means was 18.65 ($P < 0.05$) and the table F-ratio was 4.32. Hence the adjusted post-test mean speed F-ratio was significant at 0.05 level of confidence for the degree of freedom 1 and 21.

RESULTS OF AGILITY:

An examination of table –I indicated that the adjusted post-test means of conventional training programme group, and conventional training combined with ladder training group were 13.23 and 12.45 respectively. The obtained F-ratio for the adjusted post-test means was 40.14 ($P < 0.05$) and the table F-ratio was 4.32. Hence the adjusted post-test mean agility F-ratio was significant at 0.05 level of confidence for the degree of freedom 1 and 21.

Adjusted mean differences of the conventional training programme group and conventional training combined with ladder training group on physical fitness variables was given in Figure I.

FIGURE-I
ADJUSTED POSTTEST DIFFERENCES OF CONVENTIONAL TRAINING PROGRAMME AND CONVENTIONAL TRAINING COMBINED WITH LADDER TRAINING GROUPS ON PHYSICAL FITNESS VARIABLES

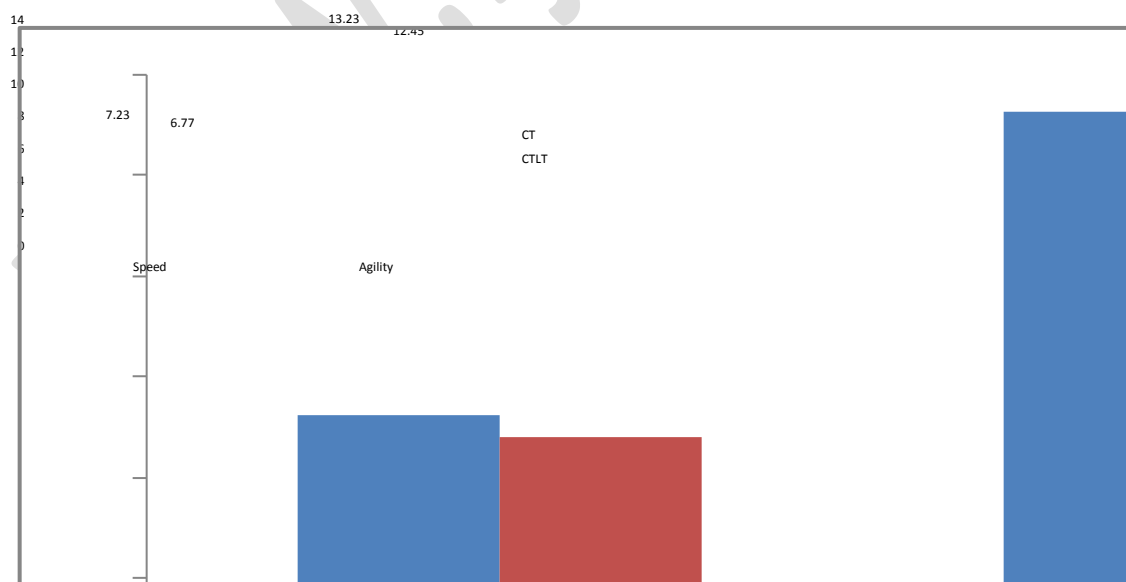


TABLE-II
COMPUTATION OF ANALYSIS OF COVARIANCE OF CONVENTIONAL TRAINING
PROGRAMME AND CONVENTIONAL TRAINING COMBINED WITH LADDER
TRAINING GROUPS ON SKILL PERFORMANCE VARIABLES

Variables	Adjusted Post-Test Means		Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
	CT Group	CTLT Group					
Lon serve	32.15	40.27	BG	395.14	1	395.14	61.47*
			WG	134.98	21	6.43	
Forehand clear	28.25	32.75	BG	121.50	1	121.50	23.82*
			WG	107.13	21	5.10	

BG- Between Group Means : WG- Within Group Mean: df- Degrees of Freedom: *** - Significant :**

(Table Value for 0.05 Level for df 1 & 21 =4.32)

RESULTS OF LONG SERVE:

An examination of table –II indicated that the adjusted post-test means of conventional training programme group, and conventional training combined with ladder training group were 32.15 and 40.27 respectively. The obtained F-ratio for the adjusted post-test means was 61.47 ($P <$

0.05) and the table F-ratio was 4.32. Hence the adjusted post-test mean long serve F-ratio was significant at 0.05 level of confidence for the degree of freedom 1 and 21.

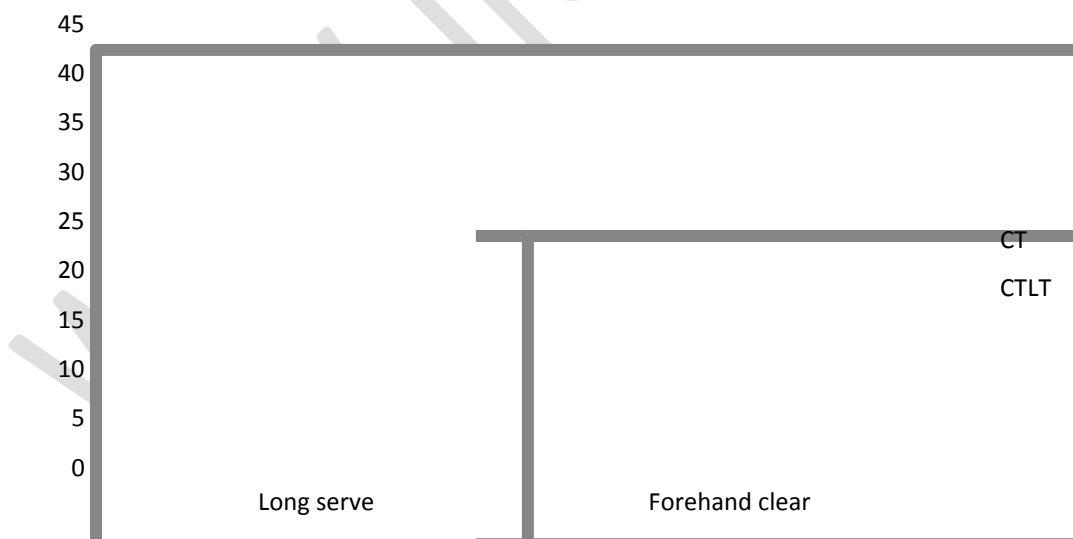
RESULTS OF FOREHAND CLEAR:

An examination of table –II indicated that the adjusted post-test means of conventional training programme group, and conventional training combined with ladder training group were 28.25 and 32.75 respectively. The obtained F-ratio for the adjusted post-test means was 23.82 ($P < 0.05$) and the table F-ratio was 4.32. Hence the adjusted post-test mean forehand clear F-ratio was significant at 0.05 level of confidence for the degree of freedom 1 and 21.

Adjusted mean differences of the conventional training programme group and conventional training combined with ladder training group on skill performance variables was given in Figure III.

FIGURE-II

ADJUSTED POSTTEST DIFFERENCES OF CONVENTIONAL TRAINING PROGRAMME AND CONVENTIONAL TRAINING COMBINED WITH LADDER TRAINING GROUPS ON SKILL PERFORMANCE VARIABLES



DISCUSSION ON FINDINGS:

With the detailed analysis of the collected data, the following are the finding of the present study.

PHYSICAL FITNESS VARIABLES

The finding of speed and agility showed that there was a significant effect in speed and agility due to the influence of conventional training combined with ladder training (CTLT) of college level badminton players. The finding of the study is supported by the following authors.

Walklate BM et. al. (2009) suggested that supplementing regular training with sessions of short-duration sprint training appears to lead to worthwhile increases in repeated-agility sprint performance with national level badminton players.

Jeyaraman. (2011) concluded that the agility, mid-thigh girth, explosive strength, height, length, leg explosive power, wrist girth and hand length were predominant factors among University badminton players.

Jovanovic, et al. (2011) suggested that the speed, agility, quickness (SAQ) training method showed significant improvement on power performance in soccer players.

SKILL PERFORMANCE VARIABLES

The finding of long serve and forehand clear showed that there was a significant effects in long serve and forehand clear due to the influence of conventional training combined with ladder training (CTLT) of college level badminton players. The finding of the study is supported by the following authors

Manikandan and Sureshkumar. (2012) concluded that the ladder training group showed significant improvement on volley pass and serve.

Gurmeet Singh and Yogesh. (2011) concluded that the three different feedback methods significantly increased the clear and smash of badminton beginners.

O'keeffe, S. L et. al. (2007) evaluated that the fundamental throw teaching programme showed significant learning effects in the fundamental overarm throw but also in the specific sport skills of the badminton overhead clear.

Minna Blomqvist et al, (2001) suggested that the strategy-oriented group was able to improve its badminton knowledge, game understanding and serving skill significantly whereas the traditional group improved its badminton serving skill.

CONCLUSIONS:

Based on the findings the following conclusion were derived

1. Conventional training combined with ladder training group showed that there was a significant improvement on selected physical fitness variables compared to Conventional training programme group. These improvements occurred because of planned systematic training program.
2. Conventional training combined with ladder training group showed that there was a significant improvement on selected skill performance variables compared to Conventional training programme group. These improvements occurred because of planned systematic training program.

RECOMMENTATIONS:

RECOMMENTATION FOR IMPLICATION

1. The results of the study have suggested that the conventional training combined with ladder training will be followed by the college level badminton players.
2. The results of the study have suggested that the conventional training combined with ladder training will be followed by the school level badminton players.

RECOMMENTATION FOR FURTHER RESEARCH

1. It is recommended that the conventional training combined with ladder training will be adapted to the other racket games.
2. It is also recommended that various types of variables such as bio chemical and biomechanical variables may be used for college badminton players.

References:

- Anu Jain. (2005). Badminton Coaching manual. Delhi: Sports Publication.
- Barrow Harold, M. & Mc Gee Rosemary. (1989). Practical Measurement In physical education and sports. Philadelphia: Lea and Febiger.
- Hardayal singh. (1997). Science of sports training. New Delhi: D.V.S. Publication.
- Jeyaraman, (2011). Predict the playing ability form selected anthropometric and physical fitness parameters of University Badminton players. Emerging trends in physical education and sports sciences. Bharathidasan University, Tamil Nadu, India. Page- 29.
- Jovanovic Mario., Sporis Goran., Omrcen Darija., & Fiorentini Fredi. (2011). Effects of Speed, Agility, Quickness Training Method on Power Performance in Elite Soccer Players. Journal of Strength & Conditioning Research, Volume 25 - Issue 5 – pp. 1285-1292.
- Kibele, A., & Behm, D. G. (2009). Seven weeks of instability and traditional resistance training effects on strength, balance and functional performance. Journal of Strength and Conditioning Research, pp. 23:2443–50.
- Manikandan., & Sureshkumar. (2012) Effect of ladder training on selected performance factors among volleyball players. Impact of physical education in developing wholesome personality among student community. Sri Ramakrishna Mission Vidyalaya, Maruthi College of Physical Education. Coimbatore.
- McGill, S., Karpowicz, A., Fenwick, C., & Brown, S. (2009). Exercises for the torso performed in a standing posture: spine and hip motion and motor patterns and spine load. Journal of Strength and Conitioning Research, pp. 23:455–64.
- Minna Blomqvist., Pekka Luhtanen., & Lauri Laakso. (2001). Comparison of Two Types of Instruction in Badminton. Physical Education & Sport Pedagogy, Volume 6, Issue 2 , pp. 139 – 155.
- PriyankaNarang. (2007). Teach Yourself Badminton. New Delhi: Sports Publication
- Walklate, B. M., O'Brien B. J., Paton, C. D., & Young W. (2009). Supplementing regular training with short-duration sprint-agility training leads to a substantial increase in repeated sprint-agility performance with national level badminton players. Journal of Strength & Conditioning Research, pp. 1477-81.
- Whitehurst, M., Johnson, B., Parker, C., Brown, L., & Ford, A. (2005). The benefits of functional exercise circuit for older adults. Journal of Strength & Conditioning Research, pp. 19:647–51.