ISO 9001 - 2015

ISSN 2349 - 4891

Monthly

IJRRAS

IF
4.665

Volume 4,Issue 5, May 2017

International Journal of
Recent Research and Applied Studies

SURRAGH PUBLICATIONS

ISSN: 2349 - 4891

International
Journal of Recent Research and Applied Studies
(Multidisciplinary Open Access Refereed e-Journal)

Effect of Specific Drills through Table Tennis Ball Feeding Machine on Selected Skill Performance Variables of Non- Table Tennis Players

Dr. M. Srinivasan[1] & P.Ilangovan[2]

[1]*Assistant Professor, Faculty of GAPEY, Ramakrishna Mission Vivekananda University, Coimbatore, Tamilnadu, India.*
[2]*MPhil Scholar, Faculty of GAPEY, Ramakrishna Mission Vivekananda University, Coimbatore, Tamilnadu, India.*

Received 26th March 2017, Accepted 1st May 2017

Abstract

The purpose of the study was to determine the effect of effect of specific drills through table tennis ball feeding machine on selected skill performance variables of non- table tennis players. To achieve the purpose 30 men non-table tennis players from faculty of general and adapted physical education and yoga, Ramakrishna Mission Vivekananda University and Maruthi College of Physical Education, Coimbatore. The age of the subject's was ranged from 23 to 28 years. the selected subjects were considered as two groups in that fifteen subjects were acted as control group and no training was given this group and another fifteen subjects were acted as experimental group this group was undergone the training . The following criterion variables were selected for the study namely forehand drive, backhand drive and alternative push test. The training period would be the six weeks except Saturday and Sunday of every week. Data were collected from each subject before and after the six weeks of training. The collected data were statistically analyzed by using 'ANCOVA' ratio. It was found that the skill performance variables namely push stroke, forehand drive and backhand drive are significantly improved due to the treatment of specific drills through table tennis ball feeding machine.

Keywords: Table tennis ball feeding machine, push stroke, forehand drive and backhand drive.

© Copy Right, IJRRAS, 2017. All Rights Reserved.

Introduction

The game originated in England during the 1880s, where it was played among the upper-class as an after-dinner parlous game. It has been suggested that the game was first developed by British military officers in India or South Africa who brought it back with them. A row of books were stood up along the center of the table as a net, two more books served as rackets and were used to continuously hit a golf-ball from one end of the table to the other. Alternatively table tennis was played with paddles made of cigar box lids and balls made of champagne corks. The popularity of the game led game manufacturers to sell equipment commercially. Early rackets were often pieces of parchment stretched upon a frame, and the sound generated in play gave the game its first nicknames of "wiff-waff" and "ping-pong". A number of sources indicate that the game was first brought to the attention of Hamley's of Regent Street under the name "Gossima" (Hamilton, Fiona 2 September 2008).

Machine Robo is a Japanese transforming robot toy line first released in 1982 by Popy, a division of Bandai, then later by Bandai proper. The franchise was marketed as Robo Machine in Europe, and Machine Men (or Robot Machine Men) in Australia. A large portion of these toys were exported to North America as part of Tonka's Gobots and Rock Lords series, beginning in 1984. In table tennis, a forehand is a stroke that is played on the right hand side of the player's body (for a right hander), and vice versa for left hander's. The forehand side of a player is the right hand side of a right hander and the left hand side for left handlers. The forehand side of the bat (for shake handlers) is the side of the bat used to hit forehand strokes (Greg Letts, 2006). In table tennis, a backhand is a stroke that is played on the left hand side of the player's body (for a right hander) and vice versa for left hander's. The backhand side of a player is the left hand side of a right hander and the right hand side for left handlers. The backhand side of the bat (for shake handers) is the side of the bat used to hit backhand strokes (Greg Letts, 2006).

Correspondence
Dr.M.Srinivasan
E-mail: srinigodisgreat@gmail.com, Ph. +9191713 09224

Objective of the Study

The objective of the study is to find out the significant improvement of specific drills through table tennis ball feeding machine on push stroke, forehand and backhand drive of non-table tennis players.

Statement of the Problem

The purpose of the study is to analyze the effect of specific drills through ball feeding machine on selected skill performance variables of non-table tennis players.

Methodology

Selection of Subjects

For this study 30 men non-table tennis players from Faculty of General and Adapted Physical Education and Yoga, Ramakrishna Mission Vivekananda University and Maruthi College of Physical Education, Coimbatore. The age of the subject's was ranged from 23 to 28 years.

Selection of the Variables

Independent variable

- Specific drills through table tennis ball feeding machine

Dependent variables

- Alternate push stroke
- Forehand drive
- Backhand drive

Experimental Design

For this study, thirty men table tennis players were randomly selected from the Faculty of General & Adapted Physical Education and Yoga, Ramakrishna Mission Vivekananda University, and Maruthi College of Physical Education, Periyanaickenpalayam, Coimbatore, Tamil Nadu. The selected subjects were considered as two groups in that fifteen subjects were acted as control group and no training was given this group and another fifteen subjects were acted as experimental group this group was undergone the training . The following criterion variables were selected for the study namely forehand drive, backhand drive and alternative push test. The training period would be the six weeks except Saturday and Sunday of every week.

Table 1
Criterion measures

S.NO	VARIABLES	NAME OF THE TEST	UNIT OF MEASUREMENTS
1.	Alternate push stroke	Alternate push test	Count
2.	Forehand drive	Forehand drive test	Points
3.	Backhand drive	Backhand drive test	Points

Figure I
Alternate Push Test

Figure II
Forehand Drive Test

Figure III
Backhand Drive Test

Table 2
Specific drills through table tennis ball feeding machine training programme

I WEEK									
Days	**Aim**	**No. of Drills**	**Rep**	**Number of Sets**	**Total Duration in Mins**	**Duration per Set in Mins**	**Density between Sets**	**Trg. Int**	**Trg. Avg**
Mon	Warm up	10	-	-	10	-	-	-	
	Technique Drills	3	10	2	40	18	2	50%	
	Warm Down	10	-	-	10	-	-	-	
Tue	Warm up	10	-	-	10	-	-	-	
	Technique Drills	3	10	2	40	18	2	50%	
	Warm Down	10	-	-	10	-	-	-	
Wed	Warm up	10	-	-	10	-	-	-	51%

	Technique Drills	3	10	2	40	18	2	55%	
	Warm Down	10	-	-	10	-	-	-	
Thu	Warm up	10	-	-	10	-	-	-	
	Technique Drills	3	10	2	40	18	2	50%	
	Warm Down	10	-	-	10	-	-	-	
Fri	Warm up	10	-	-	10	-	-	-	
	Technique Drills	3	10	2	40	18	2	50%	
	Warm Down	10	-	-	10	-	-	-	

II WEEK									
Days	**Aim**	**No. of Drills**	**Rep**	**No. of Sets**	**Total Duration in Mins**	**Duration per Set in Mins**	**Density between Sets**	**Trg. Int**	**Trg. Avg**
Mon	Warm up	10	-	-	10	-	-	-	55%
	Technique Drills	4	12	2	40	18	2	55%	
	Warm Down	10	-	-	10	-	-	-	
Tue	Warm up	10	-	-	10	-	-	-	
	Technique Drills	4	12	2	40	18	2	55%	
	Warm Down	10	-	-	10	-	-	-	
Wed	Warm up	10	-	-	10	-	-	-	
	Technique Drills	4	12	2	40	18	2	55%	
	Warm Down	10	-	-	10	-	-	-	
Thu	Warm up	10	-	-	10	-	-	-	
	Technique Drills	4	2	3	40	17	2	60%	
	Warm Down	10	-	-	10	-	-	-	
Fri	Warm up								
	Technique Drills	Game Play						50%	
	Warm Down								

III WEEK									
Days	**Aim**	**No. of Drills**	**Rep**	**No. of Sets**	**Total Duration in Mins**	**Duration per Set in Mins**	**Density between Sets**	**Trg. Int**	**Trg. Avg**
Mon	Warm up	10	-	-	10	-	-	-	61%

	Technique Drills	6	8	2	40	18	2	60%	
	Warm Down	10	-	-	10	-	-	-	
Tue	Warm up	10	-	-	10	-	-	-	
	Technique Drills	6	8	2	40	18	2	65%	
	Warm Down	10	-	-	10	-	-	-	
Wed	Warm up	10	-	-	10	-	-	-	
	Technique Drills	6	8	2	40	18	2	65%	
	Warm Down	10	-	-	10	-	-	-	
Thu	Warm up	10	-	-	10	-	-	-	
	Technique Drills	6	8	3	40	17	2	65%	
	Warm Down	10	-	-	10	-	-	-	
Fri	Warm up	10	-	-	-	-	-		
	Technique Drills	3	10	2	40	18	2	50%	
	Warm Down	10	-	-	-	-	-		

IV WEEK									
Days	**Aim**	**No. of Drills**	**Rep**	**No. of Sets**	**Total Duration in Mins**	**Duration per Set in Mins**	**Density between Sets**	**Trg. Int**	**Trg. Avg**
Mon	Warm up	10	-	-	10	-	-	-	
	Technique Drills	6	12	3	40	15	3	70%	
	Warm Down	10	-	-	10	-	-	-	
Tue	Warm up	10	-	-	10	-	-	-	
	Technique Drills	6	12	3	40	5	3	70%	67%
	Warm Down	10	-	-	10	-	-	-	
Wed	Warm up	10	-	-	10	-	-	-	
	Technique Drills	6	12	3	40	15	3	70%	
	Warm Down	10	-	-	10	-	-	-	
Thu	Warm up	-	-	-	-	-	-	-	

	Technique Drills	Game play	-	-	-	-	-	50%	
	Warm Down	-	-	-	-	-	-	-	
Fri	Warm up	10	-	-	10	-	-		
	Technique Drills	8	10	2	40	18	2	75%	
	Warm Down	10	-	-	10	-	-		

V WEEK									
Days	**Aim**	**No.of Drills**	**Rep**	**No. of Sets**	**Total Duration in Mins**	**Duration per Set in Mins**	**Density between Sets**	**Trg. Int**	**Trg. Avg**
Mon	Warm up	10	-	-	10	-	-	-	76%
	Technique Drills	8	10	2	40	18	2	75%	
	Warm Down	10	-	-	10	-	-	-	
Tue	Warm up	10	-	-	10	-	-	-	
	Technique Drills	8	10	2	40	18	2	75%	
	Warm Down	10	-	-	10	-	-	-	
Wed	Warm up	10	-	-	10	-	-	-	
	Technique Drills	4	12	2	40	18	2	60%	
	Warm Down	10	-	-	10	-	-	-	
Thu	Warm up	10	-	-	10	-	-	-	
	Technique Drills	8	13	3	40	18	2	85%	
	Warm Down	10	-	-	10	-	-	-	
Fri	Warm up	10	-	-	10	-	-		
	Technique Drills	8	13	3	40	18	2	85%	
	Warm Down	10	-	-	10	-	-		

VI WEEK									
Days	**Aim**	**No. of Drills**	**Rep**	**No. of Sets**	**Total Duration in Mins**	**Duration per Set in Mins**	**Density between Sets**	**Trg. Int**	**Trg. Avg**
Mon	Warm up	10	-	-	10	-	-	-	
	Technique Drills	8	14	3	40	18	2	90%	
	Warm Down	10	-	-	10	-	-	-	
Tue	Warm up	10	-	-	10	-	-	-	
	Technique Drills	8	14	3	40	18	2	90%	
	Warm Down	10	-	-	10	-	-	-	
Wed	Warm up	10	-	-	10	-	-	-	
	Technique Drills	6	10	3	40	18	2	75%	87%
	Warm Down	10	-	-	10	-	-	-	
Thu	Warm up	10	-	-	10	-	-	-	
	Technique Drills	8	14	3	40	18	2	90%	
	Warm Down	10	-	-	10	-	-	-	
Fri	Warm up	10	-	-	10	-	-		
	Technique Drills	8	14	3	40	18	2	90%	
	Warm Down	10	-	-	10	-	-		

Statistical Technique

Analysis of covariance (ANCOVA) was applied to determine the significance of mean difference between the two groups namely skill performance through ball feeding machine group and control group. In all cases, the criterion for statistical significance was set at 0.05 level of confident ($P \leq 0.05$).

Results and Discussion
Computation of Analysis of Covariance

Table 3
Computation of analysis of covariance of table tennis ball feeding machine group and control group on push strokes

	Ball feeding machine practice Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Means	7.73	7.60	**BG**	0.13	1	0.13	0.05
			WG	70.53	28	2.51	
Post-Test Means	11.20	7.40	**BG**	108.30	1	108.30	36.10*
			WG	84.00	28	3.00	
Adjusted Post-Test Means	11.14	7.45	**BG**	101.61	1	101.61	88.79*
			WG	30.89	27	1.144	

BG- Between Group Means *Significant
WG- Within Group Means (Table Value for 0.05 Level for df1& 28 = 4.19)
df- Degrees of Freedom (Table Value for 0.05 Level for df1& 27 = 4.21)

Results on Alternate Push Strokes

An examination of table 3 indicates that the results of ANCOVA for pre-test scores of the table tennis ball feeding machine practice group and control group. The obtained F-ratio for the pre-test is 0.05(P>0.05) indicating that the random sampling is successful and the table F-ratio is 4.19. Hence the pre-test mean F-ratio is insignificant at 0.05 level of confidence for the degree of freedom 1 and 28. The obtained F-ratio for the post-test is 36.10 (P>0.05) and the table F-ratio is 4.21. Hence the post-test mean F-ratio is significant at 0.05 level of confidence for the degree of freedom 1 and 27. The adjusted post-test means of table tennis ball feeding machine practice group and control group are 11.14 and 7.45 respectively. The obtained F-ratio is for the adjusted post-test means is 88.79 (P<0.05) and the table F-ratio is 4.21. Hence the adjusted post-test mean concentration F-ratio is significant at 0.05 level of confidence for the degree of freedom 1 and 27. Pre-test, post-test and adjusted post test mean difference of the table tennis ball feeding machine practice group and control group on push strokes is presented in Figure IV.

Figure IV
Bar diagram showing the pretest, posttest and adjusted posttest mean differences of table tennis ball feeding machine group and control group on push strokes

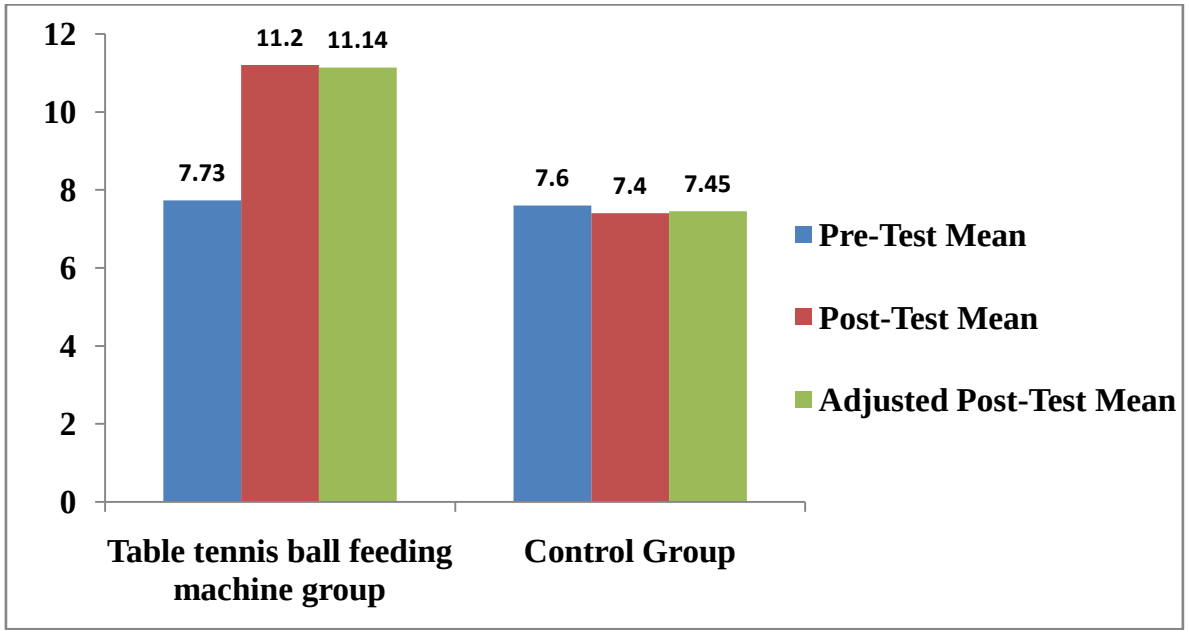


Table 4
Computation of analysis of covariance of table tennis ball feeding machine group and control group on forehand drive

	Ball feeding machine practice Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Means	19.60	19.40	**BG**	0.30	1	0.30	0.02
			WG	299.20	28	10.68	
Post-Test Means	22.66	20.00	**BG**	53.33	1	53.33	4.40*
			WG	339.33	28	12.11	
Adjusted Post-Test Means	22.57	20.09	**BG**	46.18	1	46.18	14.40*
			WG	86.57	27	3.20	

Results On Forehand Drive

An examination of table 4 indicates that the results of ANCOVA for pre-test scores of the table tennis ball feeding machine practice group and control group. The obtained F-ratio for the pre-test is 0.02(P>0.05) indicating that the random sampling is successful and the table F-ratio is 4.19. Hence the pre-test mean F-ratio is insignificant at 0.05 level of confidence for the degree of freedom 1 and 28. The obtained F-ratio for the post-test is 4.40 (P>0.05) and the table F-ratio is 4.21. Hence the post-test mean F-ratio is significant at 0.05 level of confidence for the degree of freedom 1 and 27. The adjusted post-test means of ball feeding machine practice group and control group are 22.57 and 20.09 respectively. The obtained F-ratio is for the adjusted post-test means is 14.40 (P<0.05) and the table F-ratio is 4.19.. Hence the adjusted post-test mean concentration F-ratio is significant at 0.05 level of confidence for the degree of freedom 1 and 27. Pre-test, post-test and adjusted post test mean difference of the table tennis ball feeding machine practice group and control group on fore hand drive is presented in Figure V.

Figure V
Bar diagram showing the pretest, posttest and adjusted posttest mean differences of table tennis ball feeding machine group and control group on fore hand drive

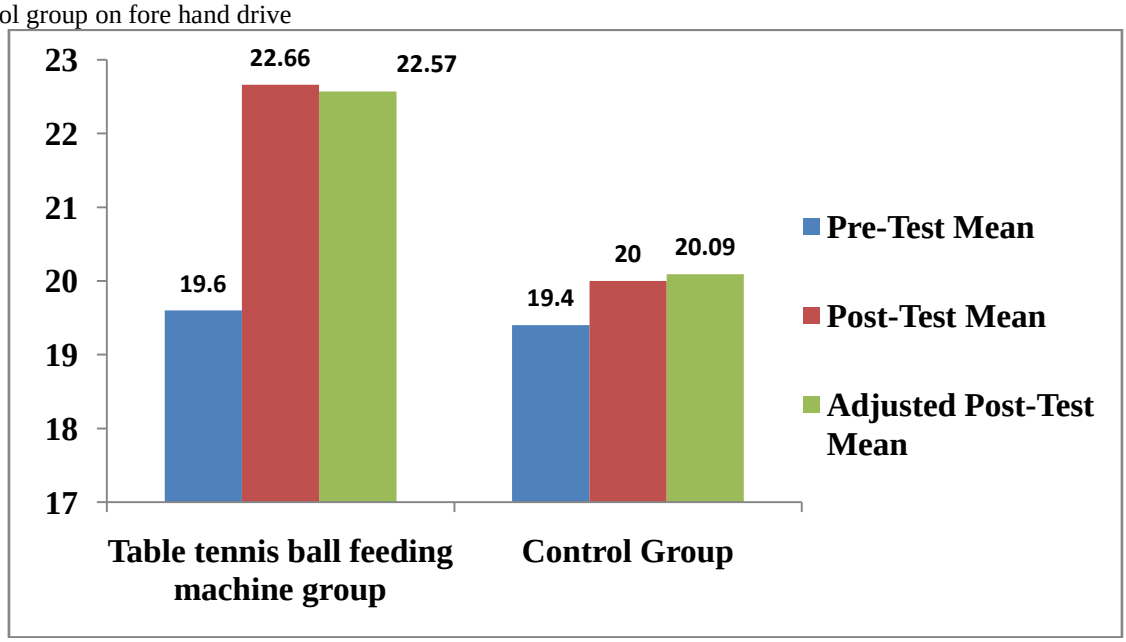


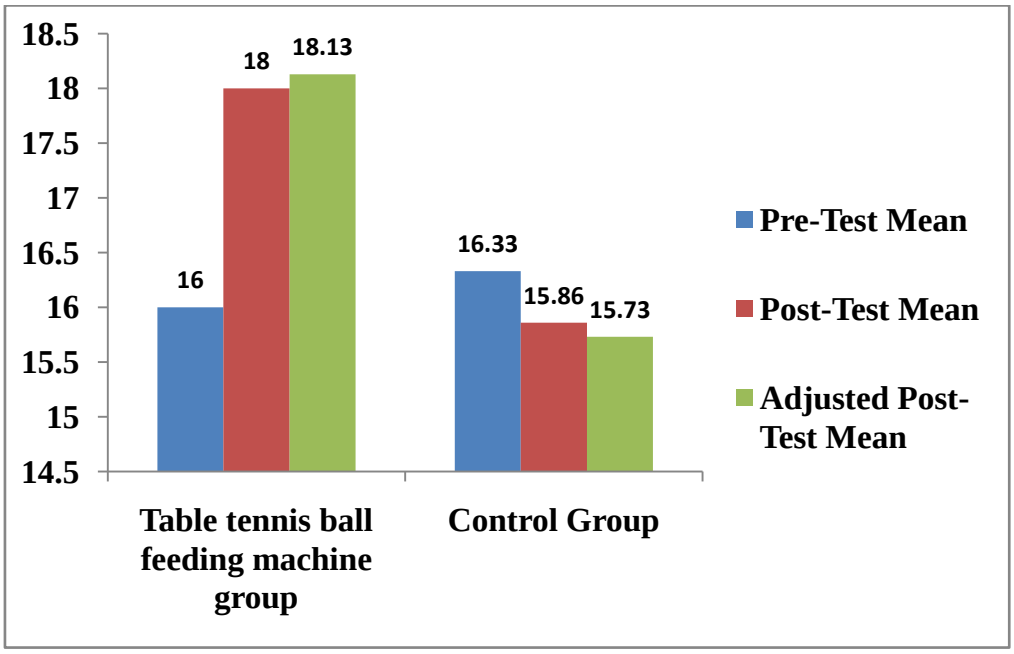
Table 5
Computation of analysis of covariance of table tennis ball feeding machine group and control group on back hand drive

	Ball feeding machine practice Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Means	16.00	16.33	**BG**	0.83	1	0.83	0.11
			WG	197.33	28	7.04	
Post-Test Means	18.00	15.86	**BG**	34.13	1	34.13	4.72*
			WG	231.73	28	8.27	
Adjusted Post-Test Means	18.13	15.73	**BG**	43.24	1	43.24	11.76*
			WG	99.28	27	3.67	

Results on Back Hand Drive

An examination of table 5 indicates that the results of ANCOVA for pre-test scores of the table tennis ball feeding machine practice group and control group. The obtained F-ratio for the pre-test is 0.11(P>0.05) indicating that the random sampling is successful and the table F-ratio is 4.19. Hence the pre-test mean F-ratio is insignificant at 0.05 level of confidence for the degree of freedom 1 and 28. The obtained F-ratio for the post-test is 4.72 (P>0.05) and the table F-ratio is 4.19.. Hence the post-test mean F-ratio is significant at 0.05 level of confidence for the degree of freedom 1 and 28. The adjusted post-test means of Ball feeding machine practice group and control group are 18.13 and 15.73 respectively. The obtained F-ratio is for the adjusted post-test means is 11.76 (P<0.05) and the table F-ratio is 4.21. Hence the adjusted post-test mean concentration F-ratio is significant at 0.05 level of confidence for the degree of freedom 1 and 27. Pre-test, post-test and adjusted post test mean difference of the Ball feeding machine practice Group and control group on back hand drive is presented in Figure VI.

Figure VI
Bar diagram showing the pretest, posttest and adjusted posttest mean differences of table tennis ball feeding machine group and control group on back hand drive



Discussion on Findings

The prime intention of the researcher was to analyze the table tennis ball feeding machine practice on the selected skills namely alternate push strokes, forehand drive and backhand drive of non-table tennis players. The theme behind this study was to observe the influence of table tennis ball feeding machine practice on the selected skills namely alternate push strokes, forehand drive and backhand drive of non-table tennis men players. To achieve this, two different practice groups were designed as experimental group (table tennis ball feeding machine practice group) and control group. The study indicated that the experimental practice group (table tennis ball feeding machine practice group) significantly improved the selected dependent variables namely alternate push strokes, forehand drive and backhand drive, when compared to the control group. The study indicated that the control group had not significantly improved the selected dependent variables

Skill Performance Variables

The finding on alternate push stroke, forehand drive and backhand drive shows that there is a significant effect due to table tennis ball feeding machine training of non-table tennis men players. The finding of the study is supported by the following authors. Dr. Pushpendra Purashwan., Dr. A. K. Datta and Mr. Manoj Purashwani(2010) concluded that the Construction of Norms Skill Test for Table Tennis battery test showed significant improvement on battery of four test items, namely Alternate Push Test, Target Service Test, Alternate Counter Test and Fore Hand Drive on Target Test with Foot movement after playing backhand push. Zagatto A, Miranda MF and Gobatto CA. (2011). Concluded the Critical power concept adapted for the specific table tennis test that showed significant improvement in an aerobic endurance in specific table tennis tests.

Conclusion

Within the limitation of the study the following conclusions were drawn.

It is concluded that the skill performance variables namely push stroke, forehand drive and backhand drive are significantly improved due to the treatment of specific drills through table tennis ball feeding machine.

References

1. Ak E., &Koçak S.(2010). Coincidence-anticipation timing and reaction time in youth tennis and table tennis players. Percept Mot Skills. Jun;110(3 Pt 1):pp-879-87
2. Baron R., Petschnig R., Bachl N., Raberger G., Smekal G., & Kastner P. (1992). Catecholamine excretion and heart rate as factors of psychophysical stress in table tennis. Int J Sports Med. Oct;13(7):pp-501-5.
3. Dufek P., Ostendorf U., & Thormahlen F. (1999). Stress fracture of the ulna in a table tennis player. Article in German, Sportverletz Sportschaden. Jun;13(2):pp-62-4.
4. Greg Letts. (2005). Definition of fore hand and back hand about table tennis.com/bio/greg letts-70327 htm.
5. HuiZhang., Wei Liu., Jin-juHu., & Rui-zhiLiu. (2013). Evaluation of elite table tennis players' technique effectiveness. Journal of Sports Sciences, Volume 31, Issue 14.
6. Iino Y., & Kojima T. (2011). Kinetics of the upper limb during table tennis topspin forehands in advanced and intermediate players. Sports Biomech. Nov;10(4):pp-361-77.
7. Iino Y., Mori T., & Kojima T. (2008). Contributions of upper limb rotations to racket velocity in table tennis backhands against topspin and backspin. J Sports sci. 2008 Feb 1;26(3):pp-287-93.