INFLUENCES OF GAME-SPECIFIC FIELD TRAINING WITH AND WITHOUT MENTAL PRACTICE STRATEGIES ON SELECTED PHYSICAL FITNESS COMPONENTS PSYCHOLOGICAL AND PERFORMANCE VARIABLES AMONG VOLLEYBALL PLAYERS

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Abstract-**The purpose of the study was to find out the influences of game- specific field training with and without mental practice strategies on selected physical fitness components and psychological variables namely speed, explosive strength, flexibility, achievement motivation, aggression, sports competition anxiety among male volleyball players. To achieve the purpose of the study thirty six male volleyball players have been randomly selected from affiliated college of Anna University Tiruchirappalli in the state of Tamil Nadu, India. The age of subjects were ranged from 17 to 23 years. The subjects had past experience of at least three years in volleyball and only who those represented their respective college teams were taken as subjects. A series of physical fitness tests was carried out on each participant. These included speed assessed by 30mts dash, explosive strength assessed by vertical jump, flexibility assessed by sit and reach performance variable assessed by using subjective rating. The subjects were randomly assigned into three groups of 12 each, such as experimental and control groups. Group-I underwent Game-specific field training, Group-II underwent game-specific field training with mental practice strategies for 5 days a week, two sessions (morning & evening) per day and for 8 weeks each session lasted 90 minutes. The control group maintained their daily routine activities and no special training was given. The subjects of the three groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance difference, if any between groups. The results of the study showed that there was significant level differences exist among game-specific field training group, game-specific field training with mental practice strategies group and control group. And also game-specific field training group, game-specific field training with mental practice strategies group showed significant improvement on level of speed, explosive strength, flexibility, achievement motivation, aggression, anxiety compared to control group. When experimental groups were compared game specific training with mental practice strategies group showed significant decrees in the aggression level and improvement in the performance level.**

Key words: **Game-specific field training, Mental practice strategies, Volleyball**

I. Introduction

Volleyball is a team sport in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules. Volley ball is a mind

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game. The need for psychological preparation of players is understood by many coaches in recent times. In many games sports psychologists offer mental training packages by mean of books, cassettes and video tapes. These materials are intended to help sport performers to learn mental skills and to improve performance. The game-specific mental training is also come-up in many games. The designing the psyching-up schedule for the volley ball players is the focus of this projects.

Sports Psychology is a field of specialists that deals with helping athletes maximize performance by managing emotions and minimizing the psychological effects of injury or poor performance. Mental practice refers to the cognitive rehearsal of a task in the absence of overt physical movement. When a musician practices a passage by thinking it through or when an athlete prepares for an event by visualizing the steps required performing the task, he or she is engaging in mental practice. Mental imagery and self-talk strategies are implemented by athletes in order to regulate arousal, reduce maladaptive behaviours, reconstruct negative thoughts, and to increase one's concentration and focus. Suinn (1990) states that mental imagery incorporates one's visual, auditory, tactile, emotional, and kinaesthetic senses. He suggests that visual motor behavioural rehearsal (VMBR) integrates the senses, which ultimately leads to increased awareness and performance enhancement. Applied research in sport psychology most often addresses the question of how psychological interventions improve performance or facilitate motor skill acquisition. It is stated that well-structured sport psychological interventions should contain psychological techniques related to different factors, like motivation, stress regulation, focus, positive self-talk, goal setting, or imagery (Robazza & Bortoli, 1998; Taylor, 1995). Performance routines act as a link between physical, technical, tactical, and mental strategies (Lidor, 2009; Schack, Whitmarsh, Pike, & Redden, 2005). Many athletes will engage in self-talk practiceto increase concentration and focus during training and competition. Beauchamp et al. (1996) suggested that novice golfers who implemented pre-putt routines reported higher accuracy ratings when compared to golfers who simply hit the ball.

The purpose of the study was to find out the influence of game- specific field training with and without mental practice strategies on selected physical fitness components and psychological variables namely speed, explosive strength, flexibility, achievement motivation, aggression, sports competition anxiety among male volleyball players.

II. Methods

To achieve the purpose of the study thirty six male volleyball players have been randomly selected from affiliated college of Anna University Tiruchirappalli in the state of Tamil Nadu, India. The age of subjects were ranged from 17 to 23 years. The subjects had past experience of at least three years in volleyball and only who those represented their respective college teams were taken as subjects. A series of physical fitness tests was carried out on each participant. These included speed assessed by 30mts dash, explosive strength assessed by vertical jump, flexibility assessed by sit and reach performance variable assessed by using subjective rating. The subjects were randomly assigned into three groups of 12 each, such as experimental and control groups. group-I undergoes game-specific field training, group-II undergoes game-specific field training with mental practice strategies for 5 days a week, two sessions (morning & evening) per day and for 8 weeks each session lasted 90 minutes. The control group maintained their daily routine activities and no special training was given. The subjects of the three groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level

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of confidence was fixed to test the level of significance difference, if any between groups.

TABLE-I
Criterion measures

S.No	Criterion measure	Test items	Unit of measurement
1	Speed	30mts dash	In seconds
2	Explosive strength	Standing broad jump	In centimeters
3	Flexibility	Sit and reach	In centimeters
4	Achievement motivation	Kamlesh	In points
5	Aggression	Smith, et all	In points
6	Sports competition anxiety	Martens, et. al (1990)-SCAT	In points
7	Performance	Subjective rating	In points

TABLE – II

Descriptive analysis of selected physical fitness components and psychological variables among control and experimental groups

S.No	Variables	Group	Pre-Test Mean	SD (±)	Post –Test Mean	SD (±)	Adjusted Mean
1	Speed	CG	4.58	0.18	4.59	0.17	4.59
		GSFTG	4.55	00.18	4.38	0.11	4.39
		GSFTWMPSG	4.59	0.17	4.39	0.16	4.387
2	Explosive strength	CG	56.16	8.14	56.75	7.74	56.705
		GSFTG	54.75	7.94	65.41	7.8214	65.75
		GSFTWMPSG	57.08	7.21	65.00	8.42	64.70
3	Flexibility	CG	19.66	1.15	20.41	0.66	20.40
		GSFTG	19.33	1.43	22.08	1.88	22.09
		GSFTWMPSG	19.41	1.37	22.16	2.03	22.17
4	Achievement motivation	CG	34.91	2.35	33.25	1.76	33.20
		GSFTG	33.83	1.89	35.58	3.20	35.66
		GSFTWMPSG	34.83	2.28	38.08	2.35	38.04
5	Aggression	CG	19.25	0.45	19.1667	0.38	19.21
		GSFTG	19.58	0.51	17.66	1.61	17.62
		GSFTWMPSG	19.41	0.51	16.33	1.43	16.33
6	Sports competition Anxiety	CG	22.08	1.97	21.50	2.02	21.47
		GSFTG	21.50	2.02	18.16	1.89	18.18
		GSFTWMPSG	21.66	2.96	17.33	1.92	17.34
7	Performance	CG	6.58	1.24	6.66	1.43	6.66
		GSFTG	6.25	1.48	7.58	0.66	7.63
		GSFTWMPSG	6.83	1.52	9.08	0.99	9.03

CG= Control group **GSFTG**= Game-specific field training group

GSFTWMPSG= Game-specific field training with mental practice strategies group

The tables-II the pre, post-test means, standard deviations and adjusted means on selected physical and psychological variables of male volleyball players were numerical

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presented. The analysis of covariance on selected variables of experimental groups and control group is presented in table – III

TABLE – III
Computation of analysis of covariance on selected physical fitness components psychological and performance variables Among Volleyball players

S.No	variables	Test	Sum of variance	Sum of squares	df	Mean square	F ratio
1	Speed	Pre-test	Between the group	0.01	2	0.007	0.19
			Within the group	1.10	33	0.03	
		Post-test	Between the group	0.34	2	0.17	7.43*
			Within the group	0.77	33	0.02	
		Adjusted means	Between the sets	0.34	2	0.17	7.65*
			Within the sets	0.71	32	0.02	
2	Explosive strength	Pre-test	Between the group	33.16	2	16.58	0.27
			Within the group	1996.83	33	60.51	
		Post-test	Between the group	573.38	2	286.6	4.47*
			Within the group	2113.16	33	64.035	
		Adjusted means	Between the sets	587.52	2	293.7	4.77*
			Within the sets	1968.88	32	61.52	
3	Flexibility	Pre-test	Between the group	0.72	2	0.36	0.20
			Within the group	58.25	33	1.76	
		Post-test	Between the group	23.38	2	11.6	4.31*
			Within the group	89.50	33	2.71	
		Adjusted means	Between the sets	23.59	2	11.79	4.22*
			Within the sets	89.29	32	2.79	
4	Achievement motivation	Pre-test	Between the group	8.72	2	4.36	0.90
			Within the group	158.25	33	4.79	
		Post-test	Between the group	140.22	2	70.11	11.11*
			Within the group	208.08	33	6.30	
		Adjusted means	Between the sets	140.73	2	70.36	10.94*
			Within the sets	205.66	32	6.42	
5	Aggression	Pre-test	Between the group	0.66	2	0.33	1.36
			Within the group	8.08	33	0.24	
		Post-test	Between the group	48.22	2	24.11	15.01*
			Within the group	53.00	33	1.60	
		Adjusted means	Between the sets	48.72	2	24.36	14.87*
			Within the sets	52.41	32	1.63	
6	Sports competition Anxiety	Pre-test	Between the group	2.16	2	1.08	0.19
			Within the group	184.58	33	5.59	
		Post-test	Between the group	116.66	2	58.33	15.35*
			Within the group	125.33	33	3.79	

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		Adjusted means	Between the sets	113.50	2	56.75	14.61*
			Within the sets	124.29	32	3.88	
7	**Performance**	Pre-test	Between the group	2.05	2	1.02	0.50
			Within the group	66.83	33	2.02	
		Post-test	Between the group	35.72	2	17.8	15.31*
			Within the group	38.50	33	1.16	
		Adjusted means	Between the sets	33.98	2	16.9	14.78*
			Within the sets	36.77	32	1.14	

*Significant at 0.05level of confidences

(The table values required for significance at 0.05 level of confidence for 2 & 33 and 2 & 32 are 3.29 and 3.20 respectively).

In the table the results of analysis of co variance on speed, explosive strength, flexibility, achievement motivation, aggression, sports competition anxiety. The obtained 'F' ratio of 0.19, 0.27, 0.20, 0.90, 1.36, 0.19 and 0.50 for Pre-test means was less than the table value of 3.29 for df 2 and 33 required for significance at 0.05 level of confidence on speed, explosive strength, flexibility, achievement motivation, aggression, sports competition anxiety and performance. The obtained 'F' ratio of 7.43, 4.47, 4.31, 11.11, 15.01, 15.35 and 15.31 for post-test means was greater than the table value of 3.29 for df 2 and 33 required for significance at 0.05 level of confidence on speed, explosive strength, flexibility, achievement motivation, aggression, sports competition anxiety and performance. The obtained 'F' ratio of 7.65, 4.77, 4.22, 10.94, 14.87, 14.61 and 14.78 for adjusted post-test means was greater than the table value of 3.20 for df 2 and 32 required for significance at 0.05 level of confidence on speed, explosive strength, flexibility, achievement motivation, aggression, sports competition anxiety. The result of the study indicated that there was a significant difference among the adjusted post test means of game-specific field training group, game-specific field training with mental practice strategies group and control group on speed, explosive strength, flexibility, achievement motivation, aggression, sports competition anxiety and performance.

Since the obtained 'F' ratio value was significant further to find out the paier mean difference, the scheffe's test was employed and presented in table -IV

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TABLE – IV

The Scheffe's test for the differences between the adjusted Post tests paired means on speed, explosive strength, flexibility, achievement motivation, aggression, sports competition anxiety and performance

Control group	Game-specific field training group	Game-specific field training with mental practice strategies group	Mean difference	Confidence Interval
Speed				
4.59	4.39	…..	0.20*	0.12
4.59	…..	4.38	0.21*	0.12
…..	4.39	4.38	0.01	0.12
Explosive strength				
56.70	65.75	…..	9.05*	7.88
56.70	…..	64.70	8*	7.88
…..	65.75	64.70	1.05	7.88
Flexibility				
20.40	22.09	…..	1.69*	1.66
20.40	…..	22.17	1.74*	1.66
…..	22.09	22.17	0.08	1.66
Achievement motivation				
33.20	35.66	…..	2.46*	2.52
33.20	…..	38.04	4.84*	2.52
…..	35.66	38.04	2.38	2.52
Aggression				
19.21	17.62	…..	1.59	1.26
19.21	…..	16.33	2.88*	1.26
…..	17.62	16.33	1.29*	1.26
Sports competition anxiety				
21.47	18.18	…..	3.29	1.96
21.47	…..	17.34	4.13*	1.96
…..	18.18	17.34	0.84	1.96
Performance				
6.66	7.63	…..	0.97	1.31
6.66	…..	9.03	2.37*	1.31
…..	7.63	9.03	1.45*	1.31

*Significant at 0.05level of confidences

From the table-IV, clear that the adjusted post test means are 4.59, 4.39, and 4.38 respectively. The mean differences in speed among groups are 0.20 and 0.21 numerically presented in the above table, which were significant at 0.05 level of confidence. The analysis reveals that there was significant difference between adjusted post-test means of game-specific field

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training group, game-specific field training with mental practice strategies group and control group in speed among Volleyball players. From the result obtained, it may be concluded that both the experimental group improvement their speed after the respective experimental treatment. The experimental groups showed significant improvement in speed.

From the table-IV, clear that the adjusted post test means are 56.70, 65.75, and 64.70 respectively. The mean differences in explosive strength among groups are 9.05, 8 and 0.21 numerically presented in the above table, which were significant at 0.05 level of confidence. The analysis reveals that there was significant difference between adjusted post-test means of game-specific field training group, game-specific field training with mental practice strategies group and control group in speed among Volleyball players. From the result obtained, it may be concluded that both the experimental group improvement their explosive strength after the respective experimental treatment. The experimental groups showed significant improvement in explosive strength.

From the table-IV, clear that the adjusted post test means are 20.40, 22.09 and 22.17 respectively. The mean differences in flexibility among groups are 1.69, 1.74 and 0.08 numerically presented in the above table, which were significant at 0.05 level of confidence. The analysis reveals that there was significant difference between adjusted post-test means of game-specific field training group, game-specific field training with mental practice strategies group and control group in speed among Volleyball players. From the result obtained, it may be concluded that both the experimental group improvement their flexibility after the respective experimental treatment. The experimental groups showed significant improvement in flexibility.

From the table-IV, clear that the adjusted post test means are 33.20, 35.66 and 38.04 respectively. The mean differences in achievement motivation among groups are 2.46, 4.84 and 2.38 numerically presented in the above table, which were significant at 0.05 level of confidence. The analysis reveals that there was significant difference between adjusted post-test means of game-specific field training group, game-specific field training with mental practice strategies group and control group in speed among Volleyball players. From the result obtained, it may be concluded that both the experimental group improvement their achievement motivation after the respective

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experimental treatment. The experimental groups showed significant improvement in achievement motivation.

From the table-IV, clear that the adjusted post test means are 19.21, 17.62 and 16.33 respectively. The mean differences in aggression among groups are 1.59, 2.88 and 1.29 numerically presented in the above table, which were significant at 0.05 level of confidence. The analysis reveals that there was significant difference between adjusted post-test means of game-specific field training group, game-specific field training with mental practice strategies group and control group in speed among Volleyball players. From the result obtained, it may be concluded that both the experimental group improvement their aggression after the respective experimental treatment. The experimental groups showed significant improvement in aggression.

From the table-IV, clear that the adjusted post test means are 21.47, 18.18 and 2.38 respectively. The mean differences in sports competition anxiety among groups are 3.29, 4.13 and 0.84 numerically presented in the above table, which were significant at 0.05 level of confidence. The analysis reveals that there was significant difference between adjusted post-test means of game-specific field training group, game-specific field training with mental practice strategies group and control group in speed among Volleyball players. From the result obtained, it may be concluded that both the experimental group improvement their sports competition anxiety after the respective experimental treatment. The experimental groups showed significant improvement in sports competition anxiety.

From the table-IV, clear that the adjusted post test means are 6.66, 7.63 and 9.03 respectively. The mean differences in performance among groups are 0.97, 2.37 and 1.45 numerically presented in the above table, which were significant at 0.05 level of confidence. The analysis reveals that there was significant difference between adjusted post-test means of game-specific field training group, game-specific field training with mental practice strategies group and control group in speed among Volleyball players. From the result obtained, it may be concluded that both the experimental group improvement their performance after the respective experimental treatment. The experimental groups showed significant improvement in performance.

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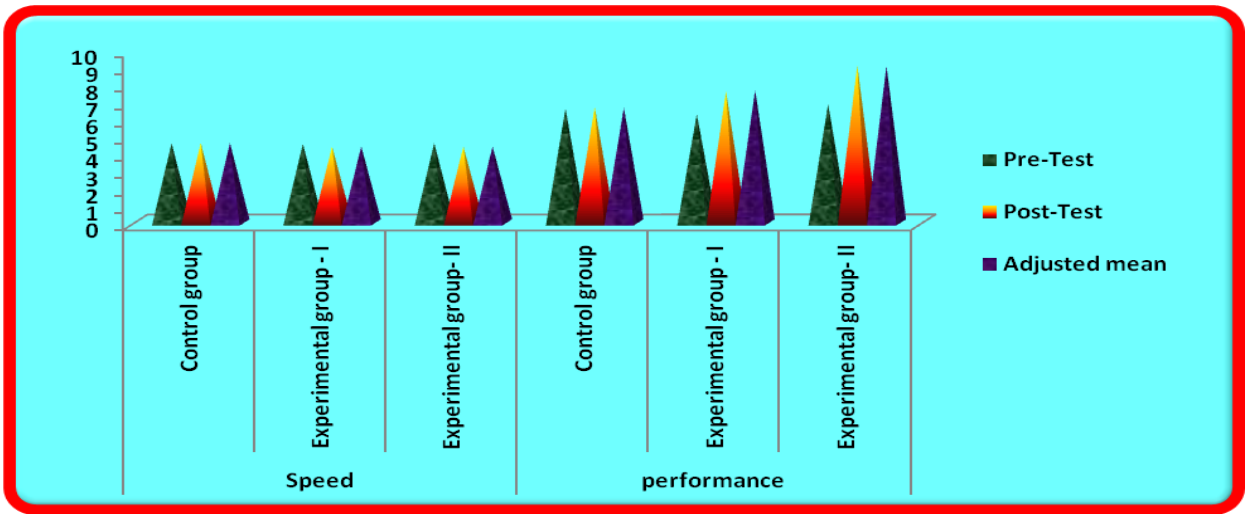

Figure-I The pre, post and adjusted mean values of speed and performance of both control and experimental groups are graphically represented in the figure-I

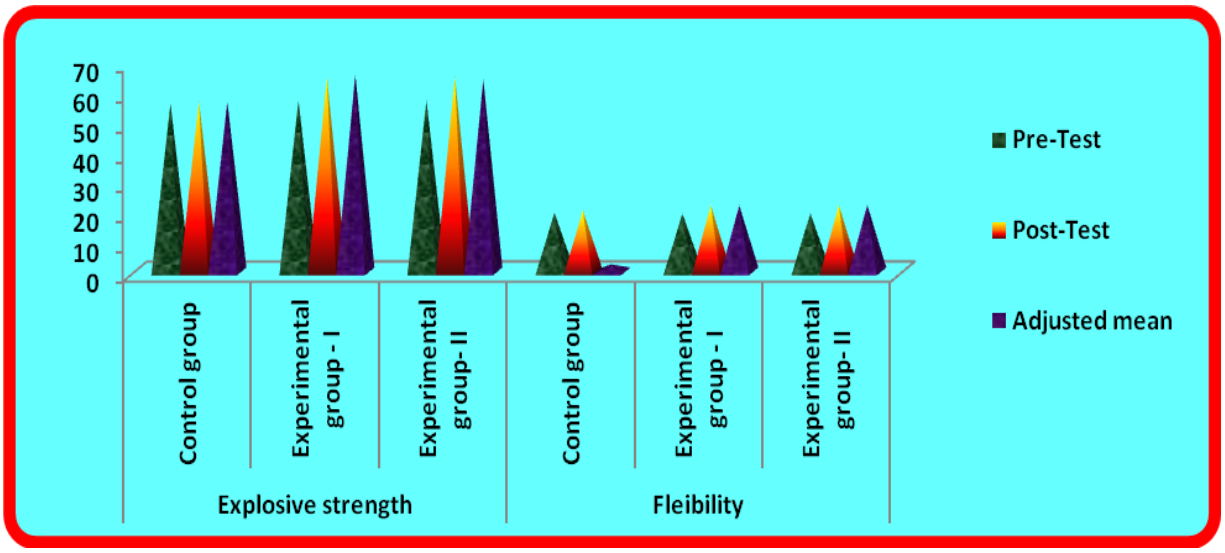

Figure-II The pre, post and adjusted mean values of explosive strength, flexibility, of both control and experimental groups are graphically represented in the figure-II

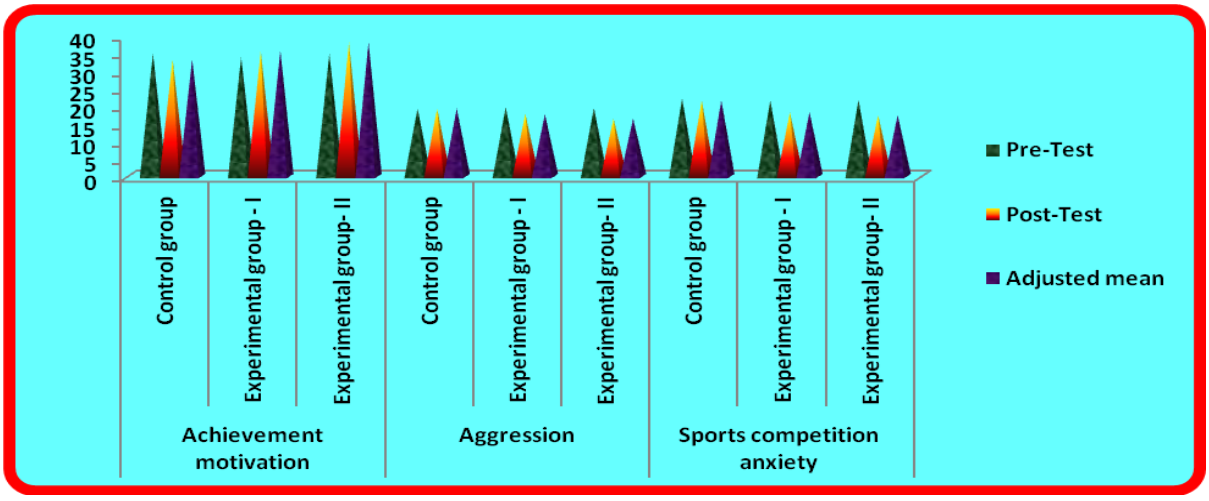

Figure-III The pre, post and adjusted mean values achievement motivation, aggression, sports competition anxiety of both control and experimental groups are graphically represented in the figure-III

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III. Discussion of findings

The results of the study indicate that the experimental groups which underwent game-specific field training group and game-specific field training with mental practice strategies groups had showed significant level improvement in the selected variables namely speed, explosive strength, flexibility, achievement motivation, aggression, sports competition anxiety, when compared to the control group. The control group did not show significant improvement in any of the selected variables. The past study on selected physiological variables also reveals similar result Kamalakkannan (2010). Abdelmohsen et, al (2011). Eugenio et, al (2005). Suggest that participants who engaged in several performance enhancement techniques exhibited enhanced performance on a golf putting task when compared to participants in a control condition. Overall, both self-talk and imagery conditions were found to significantly increase putting performance. James et, al (1994).The positive effect of mental practice on performance declines over time, a not altogether surprising phenomenon

IV. Conclusions

From the analysis of data, the following conclusions were drawn.

1. The result reveals that the game-specific field training with and without mental practice strategies groups showed significant improvement in all the selected physical fitness components, psychological and performance variables when compare with control group.
2. The game-specific field training with mental practice strategies group showed significant improvement on aggression and performance which may be due to 8 weeks of game-specific field training with mental practice strategies.
3. The control group Volleyball players did not show significant improvement in any of selected variables.

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