



ISSN: 2456-0057

IJPNPE 2022; 7(1): 87-91

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www.journalofsports.com

Received: 16-11-2021

Accepted: 18-12-2021

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Effect of fitness training and meditation on selected physical, psychological and motor variables among tennis players

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Abstract

The primary aim of the study was to investigate the effect of Fitness training and meditation on selected physical psychological and motor variable and tennis players of DCPE Amravati for the purpose of this study 20ml regular tennis practitioner of Degree College of Physical Education Amravati and the age was ranging from 18 to 25 years for selected as subject physical fitness variables were restricted to agility eye hand and eye foot coordination and explosive arm strength sports competitive anxiety and mental toughness were chosen as a psychological variables. Finger Dexterity was selected as motor variable. To measure agility semo agility test was used and score was recorded in seconds. Medicine Ball Throw test was used to measure explosive arm strength and it was recorded in meter. Nelson's Eye –Hand test was used for eye –Hand coordination and it was measured in second. Nelson's eye foot test was used to test eye foot coordination and it was measured in seconds. Finger dexterity board was used to test finger dexterity and the score was noted down in seconds. Sports Competitive Anxiety Questionnaire developed by Heinssen, Glass & Knight, 1987 to assess anxiety and the score was recorded in number. Mental Toughness (MTQ48) questionnaire developed by Dr. Alan Goldberg was used to measure mental toughness and the score was noted down in number. To determine the effect of fitness training and meditation on selected physical, psychological and motor variables among tennis players in dependent and dependent's' tests were employed for each selected variables separately, the level of significance was set at 0.05 for testing the hypothesis. The findings of the statistical analysis revealed that there was significant effect of fitness Training and Meditation programme on Eye-Hand and Eye-Foot coordination, Agility, Mental Toughness. Sports Competitive Anxiety as well as Finger dexterity of dominant hand (right hand for right handers) whereas insignificant improvement was found on Explosive Arm Strength and finger Dexterity of non-dominant hands of the experimental group.

Keywords: fitness training, meditation, tennis, physical fitness, psychological and motor variables

Introduction

In the last few decades sports have gained tremendous popularity all over the globe. The popularity of Sports is still increasing at a fast space and this happy trend is likely to continue in the future also. Sports have become an important social and cultural activity of the modern world which is being given the rightful place it deserves by the nation and societies of the world in this Badminton game is also one of them which is upgrading and become much more popular in the last decades. Elite tennis player which have been showing remarkable mark in the Olympic games and other international tournament among which Sania Mirza, Landour Paec, Mahesh Bhupathi , Somdev Devvarman etc

Perfection of players in skill and techniques are very much depend dent on the effective ways of training as well as proper practice. An appropriate conditioning program is indispensable for the development of general strength and power, endurance, speed, agility to the related games and sports.

Sport contributes to physical fitness through intensive training provided for competition in this era, to develop the standard of the game; the players and the coaches should have the knowledge of the scientific principle of sports training and must follow them while practicing to enhance the physiological, physical, psychological parameters and Motors variables along with the proper technique and tactics.

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Therefore the present study was undertaken stated as “Effect of Fitness training and meditation on selected physical, psychological and motor variables among tennis players”.

Significance of the study

1. The result of the study would be helpful to the physical teacher coaches trainer and players to determine the effect of Fitness training and meditation on the selected physical fitness psychological and motor variables of tennis players.
2. The result of the study would help to know the status of physical fitness psychological and motor variable of the Tennis player.

Hypothesis

- i. It was hypothesized Eyes that there would be significant effect of the Fitness training and meditation on the selected physical variables.
- ii. It was further hypothesized that there would be significant effect of the Fitness training and meditation on the selected psychological variables.
- iii. It was also hypothesized Eyes that there would be significant effect of the Fitness training and meditation on the motor ability of the subjects.

Methodology

Twenty male regular Tennis practitioners of Degree College of Physical Education Amravati where selected as subjects by using purposive you sampling method. the age of the subject was ranging from 18 to 25 years the subject we are divided into two homogenous group wiz. Control group and experimental group on the basis of Pre test performance. Ten subjects where assign as control group and another 10

subjects were selected as experimental groups the training period of 6 week was given to the experimental group only.

Criterion measures

Semo agility test was applied to measure agility and the score was recorded in seconds. Medicine ball throw test was used to measure explosive arm strain and score was recorded in meter. Nelson’s eye hand test was applied for eye hand coordination which was recorded in seconds. Nelson’s eye foot test was used to measure Eye foot coordination and score was noted down in seconds. Finger dexterity test was used to test finger dexterity and the score was noted down in seconds. Sports competitive exam questionnaire developed by Heinssen, Glass and knight 1987 to assess anxiety and the score was recorded in number. Mental toughness (MTQ48) questionnaire developed by Dr Alan Goldberg was used to measure mental toughness and score was noted down in number according to the develop Key.

Collection of data

The necessary data pertaining to the study were collected before the administration of training program pre- test data and immediately after completion of the training program post test data on all the selected subjects of experimental as well as control group

Analysis of data

The data pertaining two each of selected physical psychological and motor variable where exam in statistical e by applying Independent and dependent ‘t’ test in order to determine the significance of difference if any. The level of significance to test the hypothesis was set at.05.

Table 1: Description of Mean, Standard Deviation and t-ratio for the Pre -Test data on the following physical, psychological and Motor variables of Experimental and Control Group

Variable	Mean		Standard Deviation		Mean Difference	S.E. of M.D.	t-ratio
	Expt. group	Control Group	Expt. group	Control Group			
Eye- Hand coordination	36.30	36.80	2.13	2.69	0.5	1.084	0.461*
Eye- Foot coordination	10.079	10.090	1.32	0.75	0.011	0.47	0.022*
Semo agility test	14.15	14.10	0.86	0.76	0.05	0.360	0.127*
Medicine ball throw	12.45	11.68	1.45	2	0.77	0.781	0.985*
Mental toughness	20.2	19.4	1.23	2.01	0.8	2.04	1.075*
Sports Competitive Anxiety	69	69.1	4.29	3.381	0.1	1.727	0.057*
Finger dexterity test(R-H)	3.42	3.56	0.374	0.38	0.14	0.164	0.853*
Finger dexterity test(L-H)	3.94	4.1	0.53	0.34	0.16	0.197	0.812*

*Not significant at.05 level

tabulated t.05(18) = 2.101

It is evident from the above findings that the calculated t-value of 0.461, 0.022, 0.127, 0.985, 1.075, 0.057, 0.853, 0.812 for the physical, psychological, and motor variables respectively are quite lesser than the tabulated t-value of 2.101 required to be significant at .05 level for the 18 degrees

of freedom, hence it can be stated that the difference between the pre-test mean values of both groups in all eighth variables are statistically insignificant. The comparison of means has been graphically depicted in Fig.1

Table 2: Description of Mean, Standard Deviation and t-ratio for the Pre and Post Test data on the physical, psychological and motor variables of Experimental Group

Variable	Mean		Standard Deviation		Mean Difference	S.E. of M.D.	t-ratio
	Pre-test	Post test	Pre-test	Post test			
Eye- Hand coordination	36.30	33.89	2.13	2.67	2.41	1.165	4.381*
Eye- Foot coordination	10.079	8.90	1.32	0.91	1.179	0.505	7.801*
Semo agility test	14.15	12.94	0.86	0.94	1.21	0.401	7.629*
Medicine ball throw	12.45	13.04	1.45	1.48	0.59	0.654	0.423@
Mental toughness	20.2	22.1	1.23	2.51	1.9	0.883	3.298*
Sports Competitive Anxiety	69	71	4.29	5.05	2	1.046	4.243*
Finger dexterity test(R-H)	3.42	3.27	0.374	0.297	0.15	0.144	3.273*
Finger dexterity test(L-H)	3.94	3.92	0.53	0.55	0.02	0.240	0.261@

*Not significant at.05 level

Tabulated t .05(9) = 1.833

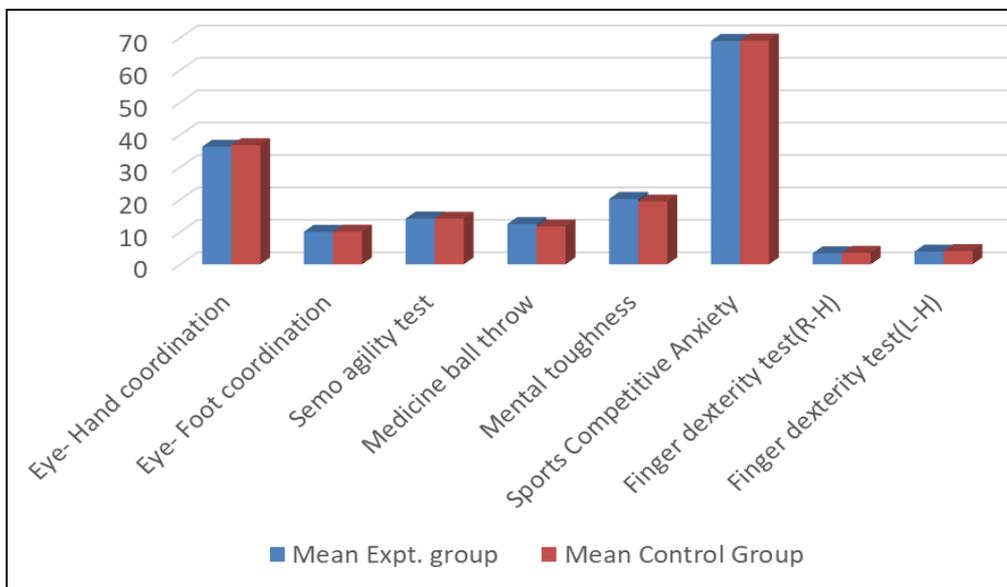


Fig 1: Description of Mean, Standard Deviation and t-ratio for the Pre -Test data on the following physical, psychological and Motor variables of Experimental and Control Group

Findings of the above table indicate that there is significant difference between the Pre-and Post-test means of eye –hand coordination ($t=4.38$) eye-foot coordination ($t=7.801$), agility ($t=4.243$), mental toughness($t=3.298$), sports competitive anxiety ($t=4.243$), and finger dexterity of right hand ($t=3.273$) of experimental group, because all the above mentioned t-values are greater than the tabulated t-value of 1.88 at .05

level for the 9 (Nine) degrees of freedom. It is also learnt from the above table that the calculated t value of explosive arm strength ($t=0.423$) and finger dexterity (left) ($t=0.261$) are smaller than the tabulated t-value of 1.833 required to be significant at .05level for the 9 degrees freedom. Comparison of means has been picturesquely presented in Fig.2.

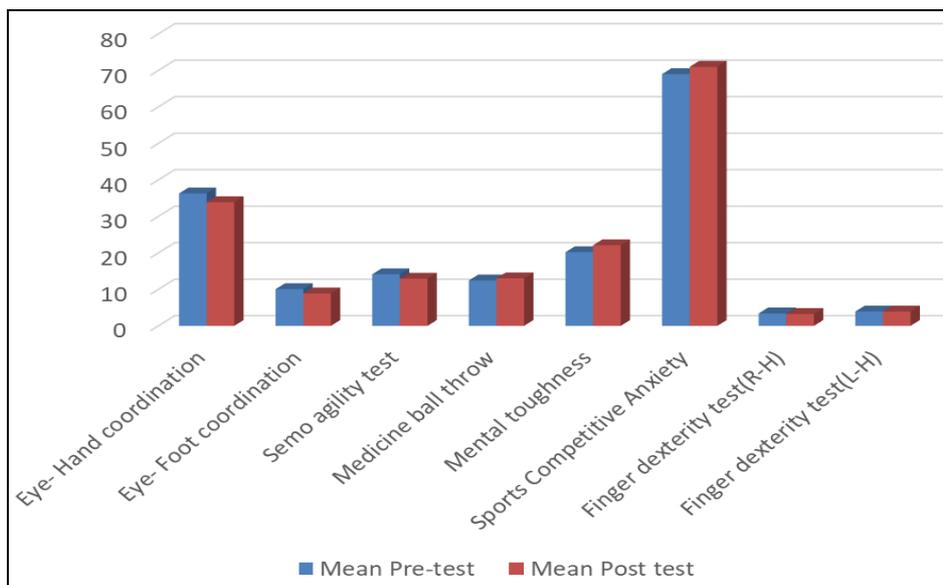


Fig 2: Description of Mean, Standard Deviation and t-ratio for the Pre and Post Test data on the physical, psychological and motor variables of Experimental Group

Table 3: Description of Mean, Standard Deviation and t-ratio for the Pre and Post Test data on the physical, psychological and motor variables of Control Group

Variable	Mean		Standard Deviation		Mean Difference	S.E.of M.D.	t-ratio
	Pre-test	Post test	Pre-test	Post test			
Eye- Hand coordination	36.80	34.72	1.69	1.70	0.01	0.757	2.788*
Eye- Foot coordination	10.99	11.88	0.75	0.79	0.04	0.343	2.971*
Semo agility test	14.10	13.65	0.765	0.851	0.086	0.360	3.467*
Medicine ball throw	11.68	11.73	2.00	2.11	0.05	0.916	0.072@
Mental toughness	19.4	19.8	2.01	2.29	0.4	0.963	0.373@
Sports Competitive Anxiety	69.1	69.6	3.381	3.657	0.276	1.508	1.048@
Finger dexterity test(R-H)	3.56	3.48	0.38	0.42	0.04	0.176	1.639@
Finger dexterity test(L-H)	4.1	4.09	0.34	0.52	0.18	0.194	0.161@

*Not significant at.05 level

Tabulated t .05(9) = 1.833

The above findings shows that the obtained t-values of eye hand coordination (t=2.788), eye foot coordination (t=2.971) and agility (t=3.467) are greater than the tabulated t-value of 1.833 at .05 level for the 9 degrees of freedom which indicate that the difference, between the pre-and post- test means of control group is statistically significant. It is also understood from the above findings that there is no significant difference

between pre and post test means of explosive arm strength (t=0.072), mental toughness (t=0.373), sports competitive anxiety (t=1.048), finger dexterity of right hand (t=0.161), because all the obtained t-values are less than that of required tabulated t-values of 1.833 at.05 level for the 9degree of freedom. Mean comparison has been shown graphically in fig.3

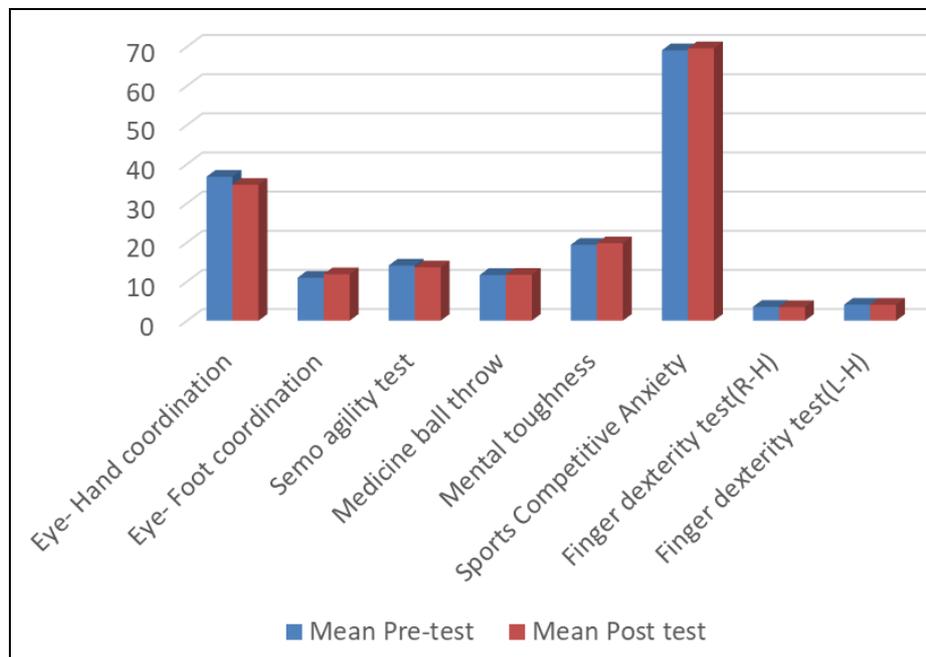


Fig 3: Description of Mean, Standard Deviation and t-ratio for the Pre and Post Test data on the physical, psychological and motor variables of Control Group

Table 4: Description of Mean, Standard Deviation and t-ratio for the Pre and Post Test data on the physical, psychological and motor variables of Experimental and Control Group

Variable	Mean		Standard Deviation		Mean Difference	S.E.of M.D.	t-ratio
	Expt. group	Control group	Expt. group	Control group			
Eye- Hand coordination	33.89	36.80	2.67	1.70	2.89	1.001	0.829@
Eye- Foot coordination	8.90	11.8	0.91	0.79	2.9	0.379	7.651*
Semo agility test	12.94	13.65	0.94	0.85	0.71	0.4	1.775@
Medicine ball throw	13.04	11.73	1.48	2.11	1.31	0.814	1.597@
Mental toughness	22.1	19.8	2.51	2.29	2.30	1.074	2.141*
Sports Competitive Anxiety	71.0	69.6	5.05	3.65	1.4	1.974	0.709@
Finger dexterity test(R-H)	3.27	3.48	0.297	0.42	0.21	0.094	2.234*
Finger dexterity test(L-H)	3.92	4.09	0.55	0.52	0.17	0.238	0.714@

*Not significant at.05 level

Tabulated t .05(18) = 2.101

It is evident from the above findings that the calculated t-values of 7.651, 2.141, 2.234 for the variable of eye-foot coordination, mental toughness and finger dexterity respectively are greater than the tabulated t-value of 2.101 required to be significant at .05 level for the 18degree of freedom, hence it can be stated that the difference between the post test mean values of both groups in the above mentioned variables are statistically significant.

Analysis of the table-4 also reveals that the calculated t-values of 0.829, 1.775, 1.597, 0.709 and 0.714 for the variables for eye-hand coordination, agility, and explosive arm strength, sports competitive anxiety and finger dexterity of left hand values respectively are smaller than the tabulated t-value of 2.101 required to be significant at .05 level for the 18degrees of freedom, hence difference between the post-test means of the above mentioned variables are statistically insignificant. The comparison or means has been graphically depicted in fig.-4

Discussion of Findings

On the basis of findings from table-2 and 4 it is understood that there was significant effect of fitness training and meditation program on eye-hand and eye-foot coordination, agility, mental toughness, sports competitive anxiety as well as finger dexterity of dominant hand (right hand for right handers), of the experimental group whereas insignificant improvement was found on explosive arm strength and finger dexterity of non dominant hands of the same group. The significant improvement in the selected variables may be attributed to the fact that six weeks of training program might have brought necessary physiological changes hence experimental group has shown higher level of improvement than the control group. Subjects of control group also showed significant improvement in the variables of eye-hand and eye-foot coordination and agility, it may be because they were kept themselves busy with regular schedules which might have led to develop the above mentioned variables; hence such result might have occurred in the study.

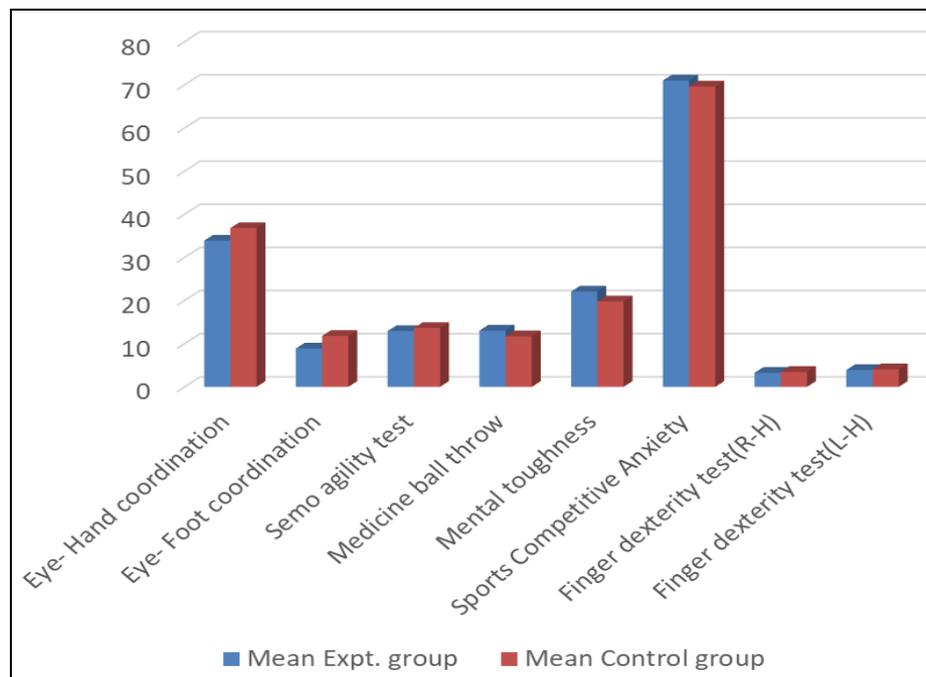


Fig 4: Description of Mean, Standard Deviation and t-ratio for the Pre and Post Test data on the physical, psychological and motor variables of Experimental and Control Group

Discussion of hypothesis

In the beginning of the study it was hypothesized that there would be significant effect of fitness training and meditation on selected physical, psychological and motor variables of the selected tennis players. The result of the study revealed that almost all the selected physical, psychological and motor variables i.e. eye-hand and eye-foot coordination, agility, mental toughness, sports competitive anxiety, finger dexterity of the dominant hand significantly increased during the training program (table-2). Hence the hypothesis stated earlier is accepted for the eye-hand and eye-foot coordination, agility, finger dexterity of dominant hand, anxiety, mental toughness whereas hypothesis is rejected in case of explosive arm strength and finger dexterity of non dominant hand.

Conclusions

Within the limitations of the basis of findings the following conclusions are drawn;

Subjects have shown improvement in eye-hand and eye-foot coordination, agility, mental toughness, sports competitive anxiety, finger dexterity of dominant hand.

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