



STUDY OF THE EFFECTS OF YOGA AND PRANAYAMA ON HUMAN REACTION TIME AND COORDINATION IN STUDENTS

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Abstract: The main purpose of the study was to analyze the effects of yoga and pranayama on human reaction time and coordination in students. The present investigator has selected male subjects from Degree College of Physical Education Amravati Shree H.V.P. Mandal Amravati (M.S) for the study. While selecting the subjects it was kept in mind that they were not involved in any sports activities. A total of 30 subjects were selected in this study by purposive sampling method. Thirty subjects were subjected to yoga and pranayama training program for 6 days per week. Two equal groups were formed among the selected subjects and one group was given training and the other group was kept as control. The control group was prohibited from participating in any sports or physical training. Before this study the health of all the subjects was checked and they were included in this study as per their wish. To test the students, Nelson Hand Reaction Time Test and Eye Hand Coordination Test (Ball Transfer) were used to find out sequential reaction time and coordination. The statistical analysis and interpretation was done on the basis of data collection. The data of Pre-Test and Post-test was compared by using paired 't' test and ANCOVA. The result was analyzed and interpretation was done. To test the hypothesis the level of significance was set at 0.05 level of confidence. It was concluded that the yoga and pranayama program selected for the students showed beneficial effects on the improvement of reaction time and coordination.

Index Terms - Yoga, Pranayama, Reaction Time, Coordination.

I. INTRODUCTION

It is as important for a person to have a good reaction time while doing physical activities as it is to have physical and mental strength. When there is a proper reaction while doing many physical activities, the action is good. While doing physical activities, one has to give quick and proper reaction. The ability to do that work depends on giving quick and proper reaction. All actions have to be done quickly according to time, those actions have to be done accurately and according to the reaction time. For example, to find out the reaction time of a player, his skill depends on how quickly he can solve the expected and unexpected events happening around him while playing and then react to them. We can understand it in this way that the gap between the command of go and the action of starting the race is the reaction time. It is very important for all humans to have physical and mental coordination, in which it is necessary for all the parts of the body to be in coordination with each other and mental coordination. When someone jumps, he should know in which position his body should be in the air and in which position he should land on the ground so that accidents can be avoided. Along with that, one should also know when to land after jumping. As much as reaction time and coordination are important for sportspersons, the same is important for a student to live his life because only by taking the right decision at the right time can a person be helped during a disaster. In this, coordination of the physical and mental reactions of a person is necessary. That is why the researcher has conducted this

study out of curiosity to know what effect the yoga and pranayam program has on reaction time and coordination in students.

II. METHODOLOGY:

The present investigator has selected male subjects from Degree College of Physical Education Amravati Shree H.V.P. Mandal Amravati (M.S). While selecting the subjects it was kept in mind that they were not involved in any sports activities. A total of 30 subjects were selected in this study by purposive sampling method. Thirty subjects were subjected to yoga and pranayama training program for 6 days per week. Two equal groups were formed among the selected subjects and one group was given training and the other group was kept as control. The control group was prohibited from participating in any sports or physical training. Before this study the health of all the subjects was checked and they were included in this study as per their wish. To test the students, Nelson Hand Reaction Time Test and Eye Hand Coordination Test (Ball Transfer) were used to find out sequential reaction time and coordination.

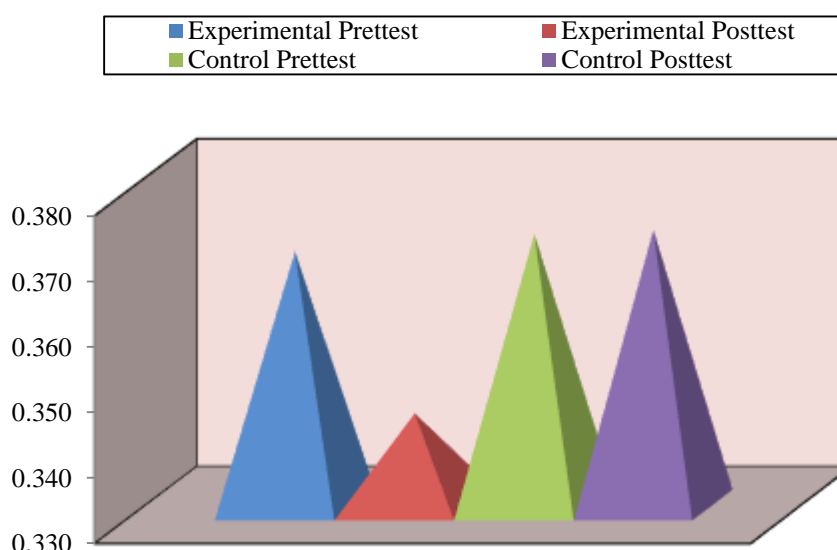
III. STATISTICAL ANALYSIS:

The statistical analysis and interpretation was done on the basis of data collection. The data of Pre-Test and Post-test was compared by using paired 't' test and ANCOVA. The result was analyzed and interpretation was done. To test the hypothesis the level of significance was set at 0.05 level of confidence which was considered adequate and reliable for the purpose of this study.

Table No.1- Comparison of experimental and control group on pre and post test of reaction time

Group	Test	Mean	SD	SE	MD	Ot	df	Tt
Experimental	Pretest	0.369	0.039	0.016	0.025	4.409	14	2.145
	Posttest	0.344	0.047					
Control	Pretest	0.371	0.058	0.022	0.001	0.250	14	2.145
	Posttest	0.372	0.060					

In table number 1, result of pre and post test of experimental group on reaction time has been presented. On reaction time it was found that after the six weeks yoga and pranayama programme students have shown more reaction time. The 't' value 4.409 which significant beyond .05 level indicates that yoga pranayama help to improve reaction time of students and not significant difference found in control group.

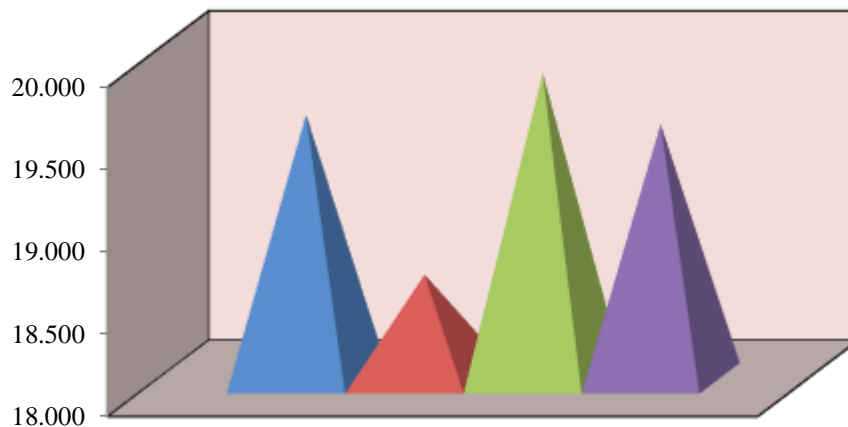


Graph No.1- Mean comparison of experimental and control group on pre and post test of reaction time

Table No.2- Comparison of experimental and control group on pre and post test of coordination

Group	Test	Mean	SD	SE	MD	Ot	df	Tt
Experimental	Pretest	19.601	2.373	0.881	0.971	13.020	14	2.145
	Posttest	18.631	2.450					
Control	Pretest	19.853	1.747	0.599	0.309	1.120	14	2.145
	Posttest	19.544	1.523					

In table number 2, result of pre and post test of experimental group on coordination has been presented. On coordination it was found that after the six weeks yoga and pranayama programme students have shown more coordination. The 't' value 13.020 which significant beyond .05 level indicates that yoga pranayama help to improve coordination of students and not significant difference found in control group.



Graph No.2- Mean comparison of experimental and control group on pre and post test of coordination

Table 3: Shows the comparison of reaction time between experimental and control groups of pre and post test.

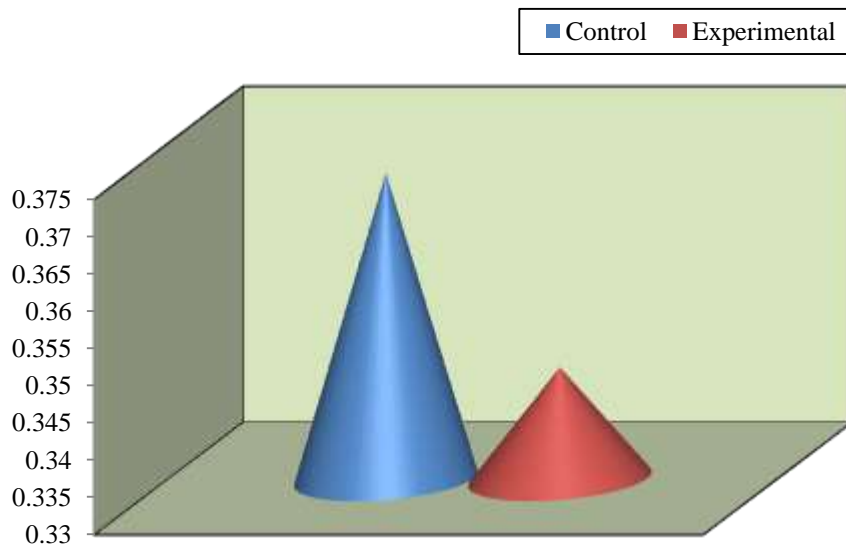
	Sum of Squares	df	Mean Square	F	Sig.
Contrast	.005	1	.005	16.157*	.000
Error	.008	27	.000		

Table No.3: indicates the obtained 'F' ratio (16.157), is more than the required table values of 4.210 for degrees of freedom (1,27). The result of the study was indicated that there was significant difference in reaction time between experimental and control group of pre and post test.

Table 4: Shows the Pair wise Comparisons of reaction time between experimental and control groups of pre and post test adjusted Means.

Group		Mean Difference	Std. Error	Sig. ^a
Control	Experimental			
0.371	0.345	0.25	0.006	0.000

Table No.8: indicates the mean difference (0.25), is more than the required Critical values. The result of the study was indicated that there was significant difference in reaction time between experimental and control groups of pre and post test adjusted Means.



Graph No.3- Adjusted means comparison of experimental and control group of reaction time

Table 5: Shows the comparison of coordination between experimental and control groups of pre and post test.

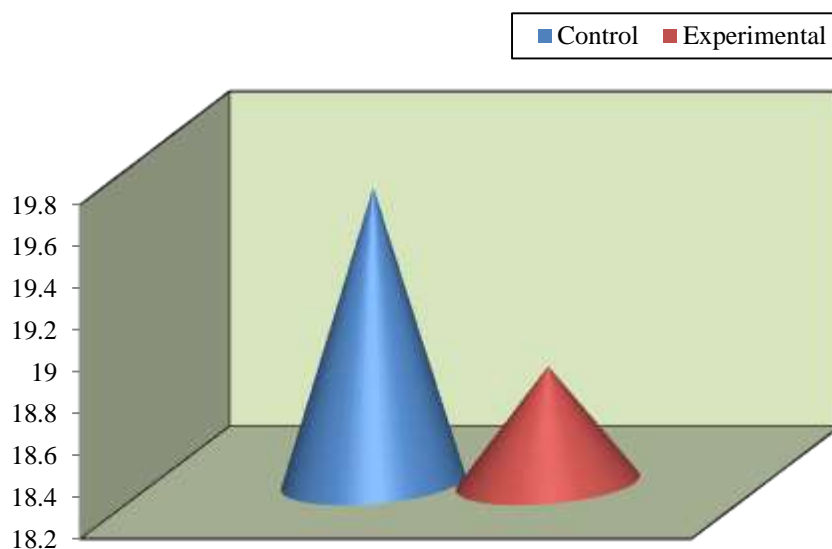
	Sum of Squares	df	Mean Square	F	Sig.
Contrast	5.446	1	5.446	47.383*	.000
Error	3.103	27	.115		

Table No.5: indicates the obtained 'F' ratio (47.383), is more than the required table values of 4.210 for degrees of freedom (1,27). The result of the study was indicated that there was significant difference in coordination between experimental and control group of pre and post test.

Table 6: Shows the Pair wise Comparisons of coordination between experimental and control groups of pre and post test adjusted Means.

Group		Mean Difference	Std. Error	Sig. ^a
Control	Experimental			
19.614	18.760	0.854	0.124	0.000

Table No.8: indicates the mean difference (0.854), is more than the required Critical values. The result of the study was indicated that there was significant difference in coordination between experimental and control groups of pre and post test adjusted Means.



Graph No.4- Adjusted means comparison of experimental and control group of coordination

IV. DISCUSSION:

The results of this study suggest that yoga and pranayama have a positive effect on human reaction time and coordination in students. Similar results have come out in many researches including Ray & Bhunia (2023) study showed that judicious selection of the ratio of asanas, YBM and meditation in a yoga program optimizes central nervous system arousal with improved VRT and ART. Choudhary, et al (2022) study proved that yoga training program reduced both auditory and visual reaction time. Sharma, et al (2018) study showed that yoga reduces reaction time and reduces stress levels in inactive men. Dilara, et al (2016) study showed that both auditory and visual reaction time decreased after Bhramari Pranayama practice on reaction time in healthy adolescents. The results of the study conducted by Arjun & Sunitha (2019) show that significant changes in eye-hand coordination, static balance, dynamic balance and reaction time can be brought about by yoga training. The study conducted by Singh & Singh (2014) showed that yoga training is very effective in improving coordination.

V. CONCLUSION:

It was concluded that the yoga and pranayama program selected for the students showed beneficial effects on the improvement of reaction time and coordination. Practicing yoga in daily life benefits the body in developing internal and external capabilities. It helps in strengthening the body's capacity, which can prevent various diseases by developing various intellectual and physical abilities. It maintains our physical health, reduces stress, controls emotions and also controls negative thoughts.

Reference:

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