

EFFECT OF YOGASANAS AND AEROBIC EXERCISES ON INTELLIGENCE OF SCHOOL CHILDREN

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Abstract: The present research is to identify the effect of yogasanas and aerobic exercises on intelligence of school children as cognitive factor. One hundred and fifty subjects (N=150) were randomly assigned to three equal groups. Each group contains 50 subjects and they were students studying in St. Antony's Public School, Hubli, Dharwad District, Karnataka, India. The said subjects were assigned into three groups namely EG-1 (YG) treated as Yogasanas; EG-2 (AG) treated as Aerobic exercises; and CG acted as control group. Intelligence was elected as a criterion variable for the investigation. The Pre test scores was collected for all the subjects on said groups on Intelligence by administering Group Test of Intelligence by Ahhuja (1971). EG-I group practiced yogasanas with pranayama and meditation; EG-2 group practiced moderate aerobic exercises. The subjects of the control group were not allowed to participate in any training program, with the exception of routine activities. During the training period, experimental groups had undergone their training programme 3 days a week on alternate days for 12 weeks in addition to normal daily work. The post test mean scores on Intelligence was collected after the said treatments. The difference between pre, post and adjusted post test mean scores on Intelligence was considered as the effect of experimental treatments. The Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA) were used to determine the significant mean differences for Intelligence among secondary school children. Post hoc analysis was made by using LSD test, when obtained F value was significant. The SPSS Package was applied to get the results with the help of MS Excel program. The level of significant level was fixed at 0.05 level. The ANOVA and ANCOVA results found that yogasanas and aerobic exercises had significant impact on improving the intelligence among secondary school children. Yogasanas shows better in improving intelligence when compared with aerobic exercises.

Index Terms- Yogasanas, Aerobic Exercises, Intelligence, Training, school children.

I. INTRODUCTION

Yoga is a systemic practice of physical exercise, breath control, relaxation, diet control, and positive thinking and meditation meant for creating harmony in the body, mind, and condition. The practice involves low-sway physical action, stances called asanas, breathing a procedure that is pranayama, relaxation, and meditation. Yogasana, pronounced with the emphasis on the second syllable, is a term for the various postures that comprise the core of a yoga workout. Different systems of yoga training require different postures. In all systems of yoga, though, the postures are only one aspect of the overall workout, because yoga encompasses more than just the physical aspects of an athlete's health. In the health fields, yoga procedures are being connected in health promotion programs, substance misuse treatment programs, and as an integral treatment for diseases, for example, anxiety disorders, depression and coronary heart diseases increase cognitive abilities. Yoga is a straightforward system with low cost, self-help approach to wellness.

Aerobics can be characterized as the type of physical exercise that joins stretching exercises alongside rhythmic oxygen consuming exercise. Aerobics are accomplished for advancing physical fitness and forestalling health illness. Fitness, in straightforward terms, can be characterized as a condition of good health and wellbeing. It is the ability of a person to perform adequately and productively in different types of work. The health benefits we obtain of the aerobic exercise are almost vital, not only does this kind of exercise help to regulate weight; it also limits the opportunities of developing many frequent illness and diseases.

Intelligence may be considered as a sort of mental energy, an aggregate or global mental capacity of an individual for helping him in coping with his environment in terms of adaptation and dealing with novel situations as effectively as possible.

Measurement of intelligence is not possible in the same way as we measure a piece of cloth or the body temperature. However, it can be well assessed with the help of some or the other intelligence tests categorized as individual and group tests involving the use of verbal and non-verbal test material. In individual tests, we test one individual at a time but in group tests a group of individuals can be tested at a given time. In all these individual as well as group tests, we either try to make use of the verbal material, i.e., language or non-verbal material for testing the intellectual level of our students. Performance tests are a typical

example of such non-verbal (language-free) tests where we try to test the intelligence of a student on the basis of his performance in some intellectual tasks.

Singh (2018) studied to identify the effects of physical activity interventions on cognitive and academic performance in children and adolescents and found showed statistically significant beneficial intervention effects of PA, while for cognitive and academic performance. Joice; Manik; and Sudhir (2018) identified the practice of yogasanas on attention, concentration, and memory of medical students and found statistically significant improvement in attention, concentration, and memory of yoga group. These changes may be due to personality development, higher concentration, and reduction of distraction thoughts (mind wandering) due to yoga training. Uthaman and Uthaman (2017) evaluated the impact of yoga and meditation on cognitive functions of students and results shows that there exists significant difference in the yoga practicing students than nonyoga practicing students. Very few studies conducted on school children with regard to effect of yogasanas and aerobic exercises on cognitive variable especially on intelligence at school level. Hence the present study is investigated to know the effect of yogasanas and aerobic exercises on intelligence of school children studying in Dharwad District, Karnataka, India.

II. STATEMENT OF THE PROBLEM

The purpose of this research is to know the effect of yogasanas and aerobic exercises on intelligence of school children. The topic selected for the study is “EFFECT OF YOGASANAS AND AEROBIC EXERCISES ON INTELLIGENCE OF SCHOOL CHILDREN.”

III. STATEMENT OF HYPOTHESIS

It was hypothesized that there would be a significant difference in the Intelligence of experimental groups due to 12 weeks practice of yogasanas and aerobic exercises of both yagasanas group and aerobic exercises group.

IV. METHODOLOGY

The present research is to identify the effect of yogasanas and aerobic exercises on intelligence of school children as cognitive factor. One hundred and fifty subjects (N=150) were randomly assigned to three equal groups. Each group contains 50 subjects and they were students studying in St. Antony's Public School, Hubli, Dharwad District, Karnataka, India. The said subjects were assigned into three groups namely EG-1 (YG) treated as Yogasanas; EG-2 (AG) treated as Aerobic exercises; and CG acted as control group. Intelligence was elected as a criterion variable for the investigation. The Pre test scores was collected for all the subjects on said groups on Intelligence by administering Group Test of Intelligence by Ahhuja (1971). EG-I group practiced yogasanas with pranayama and meditation; EG-2 group practiced moderate aerobic exercises. The subjects of the control group were not allowed to participate in any training program, with the exception of routine activities.

Experimental groups: EG-1 practiced yogasanas with pranayama and meditation; EG-2 practiced aerobic exercises. The yogasanas practiced by yoga prayer with general warming up exercises, suryanamaskara and asanas like sitting asanas, standing asanas and supine asanas and proline asanas along with pranayama, meditation and shavasana. The aerobic exercises includes V step movement L step right and left side movement, zig-zag forward movement, v-shape forward toe touch right & left side, V-shape forward knee up right and left side movement, grape wine movement, single leg side ward movement, a-step movement, dymand step movement, v-step rotation right side movement and v-step rotation left side movement. The subjects of the control group were not allowed to participate in any training program, with the exception of routine activities.

During the training period, experimental groups had undergone their training programme 3 days a week on alternate days for 12 weeks in addition to normal daily work. The post test mean scores on Intelligence was collected after the said treatments. The difference between pre, post and adjusted post test mean scores on Intelligence was considered as the effect of experimental treatments. The Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA) were used to determine the significant mean differences for Intelligence among secondary school children. Post hoc analysis was made by using LSD test, when obtained F value was significant. The SPSS Package was applied to get the results with the help of MS Excel program. The level of significant level was fixed at 0.05 level. The ANOVA and ANCOVA results found that yogasanas and aerobic exercises had significant impact

on improving the intelligence among secondary school children. Yogasanas shows better in improving intelligence when compared with aerobic exercises.

V. ANALYSIS OF THE DATA

ANOVA and ANCOVA results on Intelligence of school children due to variations in the experimental treatments of yogasanas & aerobic exercises training among control and experimental groups namely Control Group (CG); Yogasanas Group (YG); and Aerobic Exercises Group (AG) and the results are presented in the following tables

Table-1: Analysis of Variance and Analysis of Covariance on Intelligence among CG, YG and AG Groups.

	CG	YG	AG	Sources of Variance	Sum of Squares	df	Mean Square	F Value and Sig. level
Pre Mean	58.200	54.220	57.820	Between	482.413	2	241.207	1.64 ^{NS} (P=0.196)
				Within	21549.960	147	146.598	
Pre SD	10.997	11.629	13.550	Total	22032.373	149		
Post Mean	59.460	70.100	68.360	Between	3257.453	2	1628.727	10.16* (P=0.000)
Post SD	10.204	14.838	12.515	Within	23566.440	147	160.316	
				Total	26823.893	149		
Adjusted Post Mean	59.166	70.611	68.143	Contrast	3585.786	2	1792.893	11.54* (P=0.000)
				Total	22683.699	146	155.368	

^{NS}Not Significant; (df 2, 147/146); *Significant at 0.05 (Table F value is 3.06)

The table-1 demonstrates the pre-test mean scores of Intelligence (in scores) of CG, YG & AG are 58.200, 54.220 and 57.820 and the standard deviations are 10.997, 11.629 and 13.550 respectively. The obtained 'F' value of 1.64 for pre-test mean scores of Intelligence is less than the table value 3.06 for df 2 and 147 required for significance at 0.05 level. This indicates insignificant difference in the pre test scores of Intelligence among the groups.

It also illustrates post-test mean scores of Intelligence of CG, YG & AG are 59.460, 70.100 and 68.360 and the standard deviations are 10.204, 14.838 and 12.515 respectively. The obtained 'F' value of 10.16 on post-test mean scores on Intelligence is greater than the table value of 3.06 for df 2 and 147 required for significance at 0.05 level. This indicates significant difference in the post test scores of Intelligence of school children among the experimental groups after the varied trainings.

Further, the above table shows the mean scores of Intelligence of CG, YG & AG are 59.166, 70.611 and 68.143 respectively. The obtained 'F' value of 11.54 on adjusted post-test mean scores of Intelligence is greater than the table value 3.06 for df 2 and 146 required for significance at 0.05 level. This indicated that there is a significant difference in adjusted post mean scores of Intelligence of school children. Since significant F ratio was obtained, the result related to Intelligence is further subjected to post hoc analysis by using LSD test and results presented in Table-2.

Table-2. LSD Post Hoc Analysis Results on Intelligence (In scores) of school children among control and experimental groups (CG, YG & AG).

Groups			Mean Difference (MD)	Critical Difference (CD)
CG	YG	AG		
59.166	70.611	×	11.445*	5.036
×	70.611	68.143	2.468	
59.166	×	68.143	8.977*	

*Significant at 0.05 of confidence.

The table-2 shows that the adjusted post-test mean differences on Intelligence between CG & YG and CG & AG groups are 11.445 and 8.977 respectively which are higher than the critical difference of 5.036 at 0.05 level of confidence. The finding concludes that there is a significant difference on Intelligence of school children between CG & YG and CG & AG groups and shows that yogasanas and aerobic exercises had improved intelligence among school children. The adjusted post test mean difference on intelligence between YG & AG groups is 2.468 which is less than the critical difference of 5.036 at 0.05 level of confidence. This concludes that both yogasanas and aerobic exercises individually does not differ in improving intelligence among school children. The comparison of pre, post and adjusted post-test mean scores of intelligence of school children among control and experimental groups are graphically depicted in Fig.1.

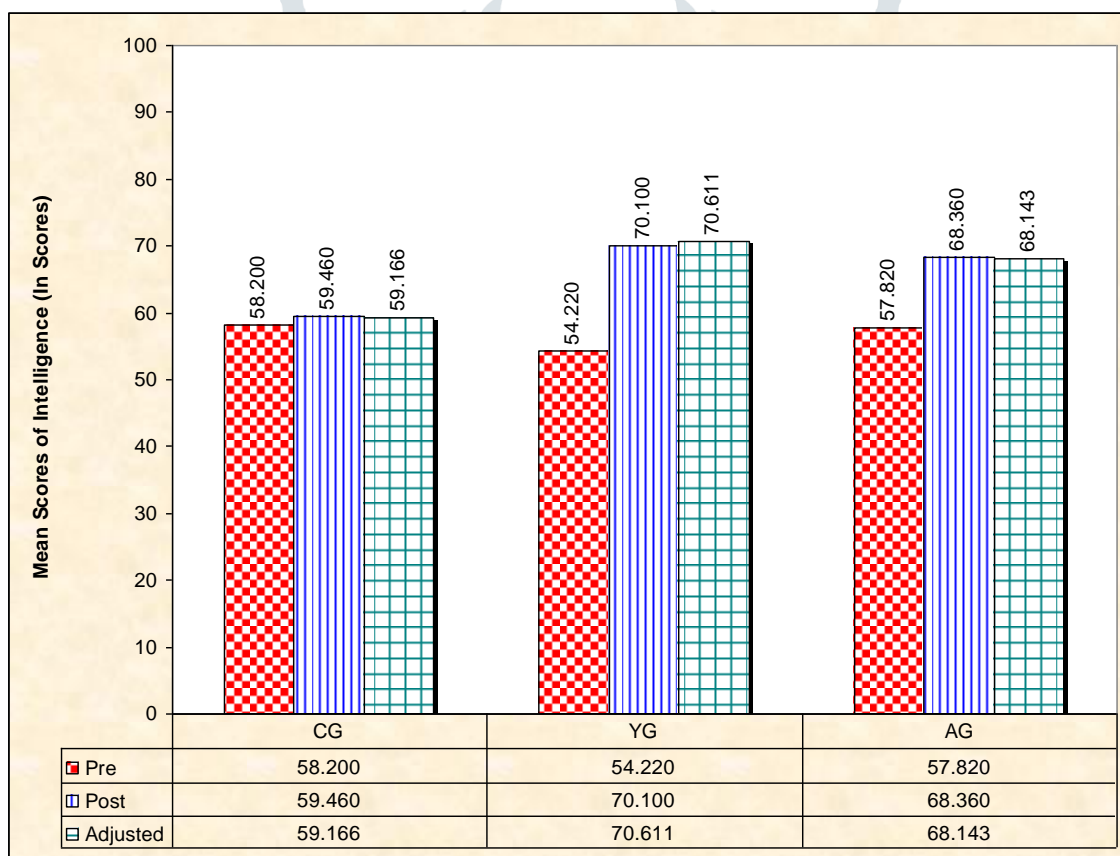


Fig.1: Bar diagram of Pre, Post and Adjusted Post-test Mean scores of Intelligence of school children among control and experimental groups.

VI. DISCUSSION OF RESULTS

The present study evaluated the values of the experimental and control groups namely Yogasanas Group (YG), Aerobic Exercises Group (AG) and Control Group (CG). The YG and AG groups were significantly improved the Intelligence from pre test to post test scores. The intelligence was improved in YG group from pre test (54.220±11.629) to post test scores (70.100±14.838), AG group from pre test (57.820±13.550) to post test scores (68.360±12.515); and intelligence was significantly increased from pre test to post test in all the two experimental groups with no change in control group. The present study demonstrated that increasing in intelligence owing to the treatment through the groups of YG was 29.29% and the improvement of AG was 18.23% estimated

with Group Test of Intelligence. In case of Control, no significant improvement (2.16%) was observed. Comparison of adjusted post test mean scores among the groups showed that YG (70.611) and AG (68.143) had increased the intelligence than Control Group (59.166).

The study concludes that yogasanas and aerobic exercises group made positive effect on increasing intelligence among the school children. Hence the stated hypothesis was accepted. It was concluded that said trainings significantly increased the intelligence of school going children. The results suggested that yogasanas is an appropriate, easy and affordable approach to increase intelligence among school children. The similar results concurred with Joice, Manik and Sudhir (2018) study shows that after practicing yoga there was a significant improvement in attention and concentration. The present study would provide a scientific base and guidance to the coaches to design the training programme for school children to improve the intelligence level which is most essential for academic success.

VII. CONCLUSION

From the study, it was concluded that yogasanas and aerobic exercises had a significant impact on increase of intelligence of school children. Yogasanas proved to be better in increasing intelligence when compared with aerobic exercises individually.

REFEERNCES

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