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Research Article

Effect of Inverted Yoga Practices and Brain Fitness Exercises on Critical Thinking of Coastal Area School Students

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ABSTRACT

The purpose of the study was to find out the effect of inverted yoga practices and brain fitness exercises on critical thinking of coastal area school students. To achieve the purpose of the present study, sixty (n = 60) coastal area school boys from Alphonsa Matriculation Higher Secondary School, Nagarcoil, Kanyakumari District, Tamil Nadu, India, were selected at random as subjects and their age ranged from 14 to 17 years. The subjects were divided into four equal groups of 15 students each. Group I acted as experimental Group I (Inverted Yogic Practices), Group II acted as experimental Group II (brain Fitness exercises group), Group III acted as experimental Group III (Combined training), and Group IV acted as control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full cooperation of the effort required on their part and before the administration of the study. The pre-test was conducted for all the subjects on critical thinking. The duration of the experimental period was 16 weeks. After the experimental treatment, all 60 subjects were tested on critical thinking. This final test scores formed as post-test scores of the subjects. The pre-test and post-test scores were subjected to statistical analysis using dependent "t"-test and analysis of covariance to find out the significance among the mean differences. Whenever the "F" ratio for the adjusted test was found to be significant, Scheffer's *post hoc* test was used. In all cases, 0.05 level of significance was fixed to test hypotheses. The combined training group had shown significant improvement in critical thinking than the inverted yoga practices, brain fitness exercises group, and control group.

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INTRODUCTION

The salubrious effects of physical exercise for health and fitness are seldom questioned. Physical education improves health, self-esteem, builds interpersonal relationships, responsible behavior, and independence (Polar, 2003). Staying fit has become an obsession for health-conscious people. They spend endless hours in activities which they think could usher in fitness. Generally speaking, when individuals are done at the exercise center they crash before television and put their cerebrum into a detached mode where every one of the abilities the psyche has, including memory, attentiveness, and rationale stagnate.[1]

The mind is the most imperative piece of the body and do not practice it is to invite apathy and torpidity into life. Cerebrum wellness is a way to deal with preparing the mind to perform at ideal levels and be sharp and solid even as maturity acts to degenerate the memory. A noteworthy piece of brain games includes playing an assortment of cerebrum diversions to prepare distinctive regions of the cerebrum. A couple of empirical articles on the effects of brain fitness exercises was reviewed by[2], Stephenson (2009), and Spaulding, Mostert, and Beam (2010). All four studies have affirmative findings supporting the efficacy of brain fitness activities. Indeed, even straightforward recreations, for example, bewilders, conundrums, crossword amusements, and even memory coordinate card diversions can help empower parts of the mind that include subjective capacity, critical thinking, memory maintenance, and other cerebrum aptitudes.

B.K.S. Iyengar holds the view that inversions allow the body to purge impurities, which facilitates strength, firmness, calmness, and clarity of mind. Ayurveda recommends the regular practice of inversions based on the theoretical concept that many of the impurities in our body are held in the lower abdominal area. When you invert the body and raise your feet above your head, you allow gravity to move these impurities

Table 1: Computation of ANCOVA of inverted yogic practices brain fitness exercises combined training and control groups on critical thinking

Test	IYPG	BFEG	COTG	CG	Source of variance	Sum of squares	Df	Means squares	F-ratio
Pre-test means	59.33	59.26	58.86	58.66	BG	4.60	3	1.53	0.78
					WG	109.33	56	1.95	
Post-test means	79.80	80.20	90.00	59.13	BG	7589.65	3	2529.88	830.76*
					WG	170.53	56	3.04	
Adjusted post-test means	79.85	80.24	89.96	59.06	BG	7552.63	3	2517.54	831.87*
					WG	166.44	55	3.02	

ANCOVA: Analysis of covariance; *Significant at 0.05 level

toward our Agni (fire), which is located in our digestive tract (just above our lower abdomen). By allowing these impurities to move to your Agni (which will burn them off), you'll be able to breathe deeper and improve your health.

Critical thinking is a vital topic in modern education. Critical thinking means making reasoned judgments that are logical and well-thought out. It is a way of thinking. You don't simply accept all arguments and conclusions you are exposed to. An attitude of questioning follows. It is universally accepted that critical thinking should be an important dimension of education.[1] Critical thinking should be not only educational choice but also rather an inextricable part of education.

METHODOLOGY

The purpose of the study was to find out the effect of inverted yoga practices and brain fitness exercises on critical thinking of coastal area school students. To achieve the purpose of the present study, 60 (n = 60) coastal area school boys from St. Alphonsa Matriculation School, Nagarcoil, Kanyakumari District, Tamil Nadu, India, were selected at random as subjects and their age ranged from 14 to 17 years. The subjects were divided into four equal groups of 15 students each. Group I acted as experimental Group I (Inverted Yogic Practices), Group II acted as experimental Group II (Brain fitness exercises group), Group III acted as experimental Group III (Combined training), and Group IV acted as control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full cooperation of the effort required on their part and before the administration of the study. The pre-test was conducted for all the subjects on critical thinking. The duration of the experimental period was 16 weeks. After the experimental treatment, all 60 subjects were tested on critical thinking. This final test scores formed as post-test scores of the subjects. The pre-test and post-test scores were subjected to statistical analysis using dependent "*t*"- test and analysis of covariance to find out the significance among the mean differences. Whenever the "F" ratio for the adjusted test was found to be significant, Scheffe's *post hoc* test was used. In all cases, 0.05 level of significance was fixed to test hypotheses.

RESULTS

An examination of Table 1 indicated that the pre-test means of inverted yogic practices, brain fitness exercises, and combined training, and control groups were 59.33, 59.26, 58.86, and 58.66, respectively. The obtained F-ratio for the pre-test was 0.78, and the table F-ratio was 2.76. Hence, the pre-test means F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 56. This proved that there was no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

Table 2: The Scheffe's test for the differences between the adjusted post-test means on critical thinking

Adjusted post-test means				Mean difference	Confidence Interval
IYPG	BFEG	COTG	CG		
79.85	80.24	---	---	0.39	1.82
79.85	---	89.96	---	10.11*	
79.85	---	---	59.06	20.79*	
---	80.24	89.96	---	9.72*	
---	80.24	---	59.06	21.18*	
---	---	89.96	59.06	30.90*	

*Significant at 0.05 level

The post-test means of the inverted yogic practices, brain fitness exercises, combined training, and control groups were 79.80, 80.20, 90.00, and 59.13, respectively. The obtained F-ratio for the post-test was 830.76, and the table F-ratio was 2.76. Hence, the pre-test means F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 56. This proved that the differences between the post-test means of the subjects were significant. The adjusted post-test means of the inverted yogic practices, brain fitness exercises, combined training, and control groups were 79.85, 80.24, 89.96, and 59.06, respectively. The obtained F-ratio for the adjusted post-test means was 831.87, and the table F-ratio was 2.77. Hence, the pre-test means F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 55. This proved that there was a significant difference among the means due to the experimental training on critical thinking. Since significant differences were recorded, the results were subjected to *post hoc* analysis using Scheffe's *post hoc* test. The results were presented in Table 2.

The multiple comparisons showed in Table 2 proved that there existed significant differences between the adjusted means of inverted yogic practices group and combined training group (10.11), inverted yogic practices group and control group

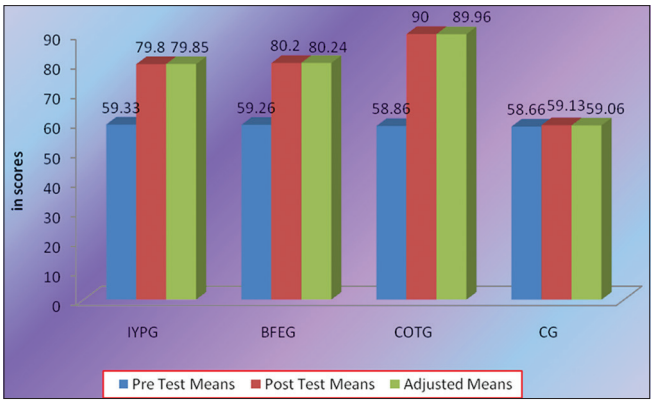

Figure 1: Pre-post and adjusted post-test differences of inverted yogic practices brain fitness exercises combined training and control groups on critical thinking

(20.79), brain fitness exercises group and combined training group (9.72), brain fitness exercises group and control group (21.18), and combined training group and control group (30.90). There was no significant difference between the inverted yogic practices group and brain fitness exercises group (0.39), at 0.05 level of confidence with the confidence interval value of 1.82.

The pre, post, and adjusted means on critical thinking were presented through a bar diagram for a better understanding of the results of this study in Figure 1.[4-10]

CONCLUSION

The combined training group had shown significant improvement in critical thinking than the inverted yoga practices, brain fitness exercises group, and control group.

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