

Effect of Asana on Health Related Fitness of School Children

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Abstract

Every individual needs health and fitness to lead a happy and enjoyable life. To achieve this diet and exercise plays a vital role & it helps the body to build healthy cells, tissues, glands and organs. For assessing the role of yoga in improving Health related Physical Fitness an experiment was conducted on the students belonging to different economic class/society i.e. Elite class having income above Rs. 1 lakh and the colour of ration-card is White, Middle Class – Income below Rs. 1 lakh and the colour of ration card is Orange, and Slum Area – Income below Rs. 15000/- and rationing card is Yellow. Specially prepared yoga program was administered on the subjects having age between 13-15 years. All the subject of experimental group underwent six weeks training of Yoga practices for 1 hour daily in the morning except Sunday and holidays. Simultaneously, the subjects of the control group were engaged in some recreational activities, library reading etc. for 1 hour daily. The result shows that the subjects' benefited by the yoga program in improve Height ($F=73.67$, $p=0.001$), Muscular Endurance ($F=137.15$, $p=0.001$) and Flexibility ($F=69.25$, $p=0.001$) while it was helpful in reducing the weight ($F=18.04$, $p=0.001$). It was also confirmed that the yoga program has superior effect on slum class students than elite class in case of muscular endurance.

Key Words: Economic Class, Yoga Program.

Introduction

Every individual needs health and fitness to lead a happy and enjoyable life. Individual may be young or old, men or women, ill or handicapped, rich or poor, but they need physical, mental, social and emotional health. To achieve this diet plays a vital role & it helps the body to build healthy cells, tissues, glands and organs. The body can't perform any of its functions be they metabolic, hormonal physical, mental or chemical without proper diet.

Physical fitness, participation in physical activity, fundamental motor skills and body composition are important contributors to the health and the development of a healthy lifestyle among children and youth. It has been seen through many scientific research studies that significant health problems encountered in adulthood often have their roots in health behaviours initiated during childhood and adolescence (Grund, Dilba, Forberger, Krause, Siewers, Rieckert, and Müller, 2000; Heath, Pratt, Warren, and Kann, 1994). In order to reverse this trend, school authority, health personnel, and parents need to understand the growth, nutrition and health related fitness status of the teenagers belonging to slum, middle class and elite society.

In this context, Indian educational institutions consider Yoga in the curriculum of Physical Education with a view to encourage value education, personality development

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and mental growth. In reality, impact of yoga on children's growth, nutrition, health related fitness and performance related fitness is unexplored. Thus, the present study on yoga, fitness and nutrition for school children has social significance.

Methodology

Experimental Study

On the basis of survey study ninety subjects were randomly selected and assigned six equal groups as shown in table 1.

The experimental Groups received specially designed Yoga training while remaining three Groups were treated as control. The design of the experiment has been planned in three phases.

Pre – Test (phase – I)

As the purpose of this part of the study was to see the efficacy of yogic practices on growth, nutrition, health related fitness and sports talent components, all the subjects of experimental and control groups were exposed to related standard tests to record the pre test data.

Treatment stimuli (phase – II)

After the pre test was over, all the subject of experimental group underwent six weeks training of Yoga practices for 1 hour daily in the morning except Sunday and holidays. Simultaneously, the subjects of the control group were engaged in some recreational activities, library reading etc. for 1 hour daily. In the mean while, all the parents of the students of experimental groups were given ideas about yogic diet to be given to their respective child.

For total period of six weeks, one yoga teacher was appointed to organize daily training programmes (yoga) under the over all supervision of the present investigator.

Table 1
Subjects of the Study

Class	Experimental	Control	Total
Low income-Slum	15	15	30
Middle class	15	15	30
Elite	15	15	30
Total	45	45	90

Post test (phase III)

Finally, when the treatment or training period of six weeks was over, all the subjects of experimental and control groups were assessed with the standard tests which were already performed in pretest.

Variables, Tools Used & Criterion Measures

Before and after experiment following tests for the subjects of both the experimental and control groups were assessed with the help of some standard tests (Table 2).

Yoga Intervention

Yoga intervention was prepared with some of the asanas and pranayamas. This also includes Omkar recitation. All these contents were selected on the basis of various reports on Yoga and Physical fitness and also based on suggestions on *full course* cited by Swami Kuvalayananda (1982) and opinion also from the experts of Kaivalyadhama Yoga Research Institution, Kaivalyadhama, Lonavla. The yoga training imparted to the experimental groups for total of six weeks (Table 3).

Table 2
Variables and Criterion Measures of the Study

Variables	Tools Used	Criterion Measures (Nearest to)
Growth variable: Height Weight	Stadiometer Weighing machine	Cm. (0.05 Cm) Kg. (0.5 Kg.)
Health related physical fitness variable: Abdominal muscles strength Flexibility Body fat Cardiovascular endurance	Sit ups test Sit & Reach test Fat O Monitor 1400 M run	No./min (1.0 No.) Cm. (0.05 Cm.) % (0.5%) Min:Sec (0.05 Sec)

Table 3
Specially Prepared Yoga Program

Sr. No.	Name of Yoga Practice	Sr. No.	Name of Yoga Practice
1	Shavasana	12	Chakrasana
2	Pawanmuktasana	13	Parvatasana
3	Naukasana	14	Tadasana
4	Viparitkarani	15	Halasana
5	Bhujangasana	16	Brahma Mudra
6	Shalabhasana	17	Ujjayi Pranayama
7	Vajrasana	18	Anuloma-Viloma

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8	Vakrasana	19	Kapalabhati
9	Paschimottanasana	20	Om Recitation
10	Mayurasana		
11	Janushirasana		

Results of the Study

Table 4
 Descriptive Statistics: Change in Mean Performance

Economic Class	Group	Height	Weight	Muscular Endurance	Flexibility	C.V. Endurance	Fat %
Elite Class	Experiment	0.45	-0.17	2.53	3.47	-0.03	0.10
	Control	0.03	0.47	-0.40	0.20	-0.01	0.01
	Total	0.24	0.15	1.07	1.83	-0.02	0.06
Middle Class	Experiment	0.29	0.17	3.13	3.33	-0.03	-0.01
	Control	0.03	0.71	0.53	0.40	0.00	-0.07
	Total	0.16	0.44	1.83	1.87	-0.01	-0.04
Slum Class	Experiment	0.35	-0.17	3.67	4.53	0.62	-0.25
	Control	0.00	0.43	0.21	0.93	-0.72	0.00
	Total	0.18	0.12	2.00	2.79	-0.03	-0.13
Total	Experiment	0.37	-0.06	3.11	3.78	0.19	-0.05
	Control	0.02	0.54	0.11	0.50	-0.23	-0.02
	Total	0.19	0.24	1.63	2.16	-0.02	-0.04

Table 5
 Consolidated Inferential Statistics of Change in Performance

Source	Change in Height		Change in Weight		Change in Muscular Endurance	
	F	Sig.	F	Sig.	F	Sig.
Economic Class	1.44	0.243	1.78	0.174	4.29*	0.017
Group	73.67*	0.001	18.04*	0.001	137.15*	0.001
Economic Class * Group	1.29	0.280	0.05	0.950	1.12	0.331

Table 3A
 Consolidated Inferential Statistics of Change in Performance

Dependent Variable	Change in Flexibility		Change in C.V. Endurance		Change in Body Fat %	
	F	Sig.	F	Sig.	F	Sig.
Economic_type	1.87	0.160	0.001	0.999	1.83	0.167
Group	69.25*	0.001	1.716	0.194	0.16	0.686
Economic_type * Group	0.34	0.713	1.969	0.146	1.96	0.148

Table 6
 Multiple Comparison : Muscular Strength

(I) Economic_type	(J) Economic_type	Mean Difference (I-J)	Std. Error	Sig.
Elite Class	Middle Class	-.77	.316	.058
	Slum Class	-.83*	.316	.035
Middle Class	Elite Class	.77	.316	.058
	Slum Class	-.07	.316	.978
Slum Class	Elite Class	.83*	.316	.035
	Middle Class	.07	.316	.978

Results on Yoga for Health related fitness Variables

- Economic Class wise results shows that “**Slum class**” showed significant **improvement** in *Abdominal muscles strength* than elite class (p=0.035). However, students of “**Middle class**” and “**Elite Class**” did not show significant change (p=0.058). In case of other variables there was no significant difference in the change in mean performance.
- Group Wise it was found that experimental group showed significant improvement in Height (F=73.67, p=0.001), Weight (F=18.04, p=0.001), Muscular Endurance (F=137.15, p=0.001) and Flexibility (F=69.25, p=0.001). Remaining Variables like C.V. Endurance and Body Fat, group wise, there was no significant difference.

Conclusion

This study warrants following conclusions:

- Status of abdominal muscular strength is different among the children belong to elite, middle class and slum areas. The children of slum class had superior status than elite and middle class.

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- Yoga training helps to improve Height, Muscular Endurance and Flexibility while it was helpful in reducing weight.

Recommendations

On the basis of the results and findings, this study presents the following recommendations:

- Excessive body weight and higher level of fat deposition are evident among the children of higher economic group of families (elite families), which needs special attention.
- Implementation of specific yoga practices, as suggested by Swami Kunalayananda, is recommended for school children to record better growth, health related physical fitness and sports talent ability.

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