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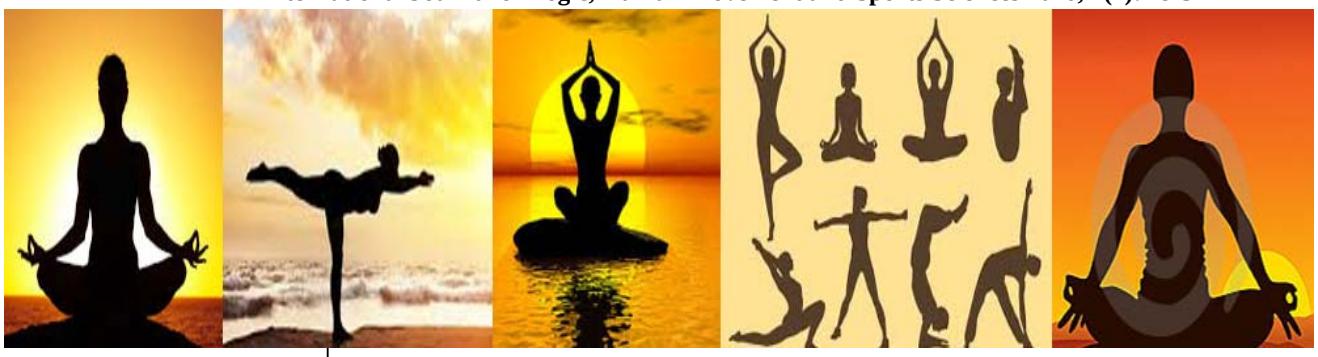

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Effect of 6 weeks asana and pranayama on physiological variables of pre –adolescent school students

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Abstract
The purpose of the study was to understand the effect of 6 weeks Asana and Pranayama on physiological variables of pre-adolescent school students. 45 male (15 Yoga group, 15Pranayama group and 15 control group) pre-adolescent school students were selected purposively from 'AKAS 'Yoga Training center of Purba Medinipur District. The age of the subjects was 12-14 years. The variables of this study were Cardiovascular Endurance and BMI. Analysis of covariance (ANCOVA) was applied to calculate the collected data at 0.05 level of significant and to identify the significance differences among the means critical difference was used as a Post-hoc test. The Result of this study there was no Significant Difference on Physiological variables among Yoga group, Pranayama group and control group on pre –adolescent school students.

Keywords: Pre –adolescent, yoga group, pranayama group, physiological

Introduction
Yoga is the art and science of living and is concerned with the evolution of mind and body. Therefore, yoga incorporates a system of disciplines for furthering an integrated development of all aspects of the individual. When we start the disciplines of yoga we usually begin with the outermost aspect of the physical personality, the physical body. Through the practice of the physical postures, or yoganas, the spinal column as well as the muscles and joints are maintained in a healthy and supple state. Subtle massage takes place at the location of different glands, balancing many physiological abnormormalities such as hyperthyroid or hypothyroid problems, faulty insulin secretions, and other hormonal imbalances. Pranayama, or breathing techniques, are important not only for supplying fresh oxygen and strengthening the lungs but because they have a direct effect on the brain and emotions. The creative energies in a constructive way and child exhibits more self-confidence, self-awareness and self-control.
As yoga's popularity grows, more and more avenues of this ancient practice are begin explored. Yoga for student, quite a modern concept, grew out of parents, thinking their children could enjoy some of the benefits of yoga that adult do, such as, improved body awareness, co-ordination and stress relief. Tradition yoga practice is definitely a grown up activity, but yoga is flexible enough to accommodate young student as well, when the teaching is approached in the right way.
Such other forms of physical activity are very good and should be introduced, but they are not suitable for all students. However, even children with physical disabilities can participate in yoga exercises because they are not just fast, energy burning, muscle hardening exercises. They are movements and postures for stretching and toning the muscles, for creating flexibility within the skeletal system and they additionally affect the development and maintenance of healthy nervous and endocrinal system.
Yoga believes that the attitude towards circumstances of life has an important influence on the development of not only metabolic and other disorders but also of infectious ones. A disturbed mind lowers the ability of general resistance of the body and creates disintegration among various organs. As a result the body becomes prone to attacks by external organism. A negative psycho physiological disturbance alters the normal rate of circulation, respiration and

metabolism. The process may affect the body as whole. Thus various internal organs such as intestine, heart, blood vessels, lungs, bronchioles may also be affected. All these changes may lead to the change in attitude and behavior of the student. According to guidelines of the central board of secondary education childhood and albescence from the most joyful period an individual's life. They are times of immense energy, self discovery and exploration of world. They can also be fraught with feelings of isolation, loneliness and confusion. They can be due to various factors relating to physical, emotional, mental and responsible role in bringing up young children in a healthy environment which would enable each one to maximize their potential.

Schools can be dynamic settings for promoting health, for enabling children to grow and mature onto healthy adults. Yet the potential of the school to enhance health is often underutilized. "School Health" has largely remained confined to medical check ups of children or some hours of health instruction including yoga in the curriculum.

Yoga is a form of complete education that can be used with all students because it develops physiological variables and intellectual and creative talents. In this study a sincere effort has been made to investigate the effects of yogasana and pranayama on physiological variables of secondary school boys.

Statement of the Problem

The Purpose Of This Study Was To Understand The Effect Of 6 Weeks Asana And Pranayama On Physiological Variables Of Pre –Adolescent School Students.

Methodology

For the purpose of this study 45 male (15 Yoga group, 15 Pranayama group and 15 control group) pre-adolescent school students were selected purposively from 'AKAS 'Yoga Training center of Purba Medinipur District. The age of the subjects was 12-14 years. The variables of this study were Cardiovascular Endurance and BMI. Analysis of covariance (ANCOVA)was applied to calculate the collected data at 0.05 level of significant and to identify the significance differences among the means critical difference was used as a Post-hoc test.

- Cardiovascular Endurance was measured by Harvard Step test and the result was recorded by fitness Index formula.
- BMI was measured by the Formula Weight(Kg)/Height(Meters^2)

Study Protocol

Table 1: The 6 Weeks Training schedule of Yoga Group

Sl. No.	Yogasana	Time
1.	Tadasana	00:01 minute
2.	Paschimottanasana	00:02 minutes
3.	Dhanurasana	00:2 minutes
4.	SupataVajrasana	00:02 minutes
5.	Sarvangasana	00:02 minutes
6.	ArdhaMatsyendrasana	00:01 minute
7.	Halasana	00:02 minutes
8.	Chakrasana	00:02 minutes
9.	Shavasana	00:06 minutes

Total: 00:20 minutes

The 6 Weeks Training schedule of Pranayama Group

Sl. No.	Pranayama	Time
1.	Yogic Breathing	00:05 minutes
2.	Anulom-Vilom	00:05 minutes
3.	Bhastrika	00:04 minutes
4.	Sheetali	00:03 minutes
5.	Ujjayi	00:03 minutes

Total: 00:20 minutes

Finding

Table 2: Significance of difference between the pre-test and post-test of the experimental group and the control group in Cardio Vascular Endurance

Groups	Pre-Test mean	Post-Test mean	Difference between mean	SE_{MD}	't' ratio
Yoga Group	68	70.04	2.4	2.76	0.86
Pranayama Group	67.2	29.9	2.7	3.30	0.81
Control Group	60.4	60.5	0.1	4.57	0.02

Significant at 0.05 level of confidence "t" 0.05(14df)=2.14

It is evident form the table-2 that Yoga Groupnot improved significantly showing "t" value of 0.86 the Pranayama Groupalso improved showing "t" value of 0.81. However, as table indicates no significant improvement was marked in case of control group.

Table 3: ANOVA table for Yoga group, Pranayama group and control group for Cardiovascular Endurance

Source of Variation	d.f	Sum of Squares	Mean Sum of Squares	F-Ratio
Between	2	596.8	298.4	1.48
Within	41	8240	200.97	Ns

$F_{0.05}(2,41)=3.22$

Table 4: Significance of difference between the pre-test and post-test of the experimental group and the control group in Body Composition (BMI)

Groups	Pre-Test mean	Post-Test mean	Difference between mean	SE_{MD}	't' ratio
Yoga Group	26.32	26.65	0.33	1.035	0.31
Pranayama Group	25.61	25.88	0.27	1.19	0.22
Control Group	27.20	27.38	0.18	1.24	0.14

Significant at 0.05 level of confidence 't' 0.05(14df)=2.14

It is evident form the table-4 that Yoga Groupnot improved significantly showing't' value of 0.31 the Pranayama Groupnot improved showing 't' value of 0.22 statistically not significant. However, as table indicates no significant improvement was marked in case of control group.

Table-5: ANOVA table for Yoga group, Pranayama group and control group for Body Composition (BMI)

Source of Variation	d.f	Sum of Squares	Mean Sum of Squares	F-Ratio
Between	2	18.70	9.349	
Within	41	830.1	20.24	.46 Ns

$F_{0.05}(2,41)=3.22$

Discussion of Findings

The analysis of data indicates that the Yoga Grouptrained by Asana and Pranayama showed improvement though statistically no significant gain the performance. The Pranayama Grouptrained by Asana and Pranayama showed no significant differences in, cardio vascular endurance and body composition.

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