



**SCHOOL PHYSICAL EDUCATION PROGRAM ENHANCES PHYSICAL AND
PHYSIOLOGICAL FITNESS IN SCHOOL GOING CHILDREN****Jewel Kerketa****Near Community Hall, Tugapur, Mayabunder, North and Middle Andaman,
Andaman and Nikobar Islands, India.****ABSTRACT:**

Effect of School Physical Education (PE) programs on school-age students is well known. These studies cover various aspects of children's health and development, including cardiovascular fitness, muscular strength, flexibility, coordination, balance, weight control, bone health, metabolic well-being, immune system functionality, mental well-being, and cognitive abilities. Total 30 school going children were included in this study. The mean ages of the subjects in study were 12.33 ± 0.84 years. All the children participated in a training program of 1 hour session/day, six days /week for consecutive 10-week. Pre and post test measurements were taken for respiratory rate, speed, upper back strength and static balance. Descriptive and comparative statistics were applied to analyze the data. Comparative statistics showed significant difference between pre and post test measurements in all studied variables under study ($p < 0.05$). It is concluded that participation in Physical Education training program improved physiological and physical fitness component in children.

**KEYWORDS :** school students, physical variables, physiological variables, speed, strength.**INTRODUCTION :**

School Physical Education (PE) programs significantly improve the physical and physiological fitness of school-age students. These programs cover various aspects of children's health and development, including cardiovascular fitness, muscular strength, flexibility, coordination, balance, weight control, bone health, metabolic well-being, immune system functionality, mental well-being, and cognitive abilities (Siegrist et.al., 2013). Physical fitness is enhanced through activities like running, swimming, cycling, calisthenics, resistance training, and gymnastics, which increase heart rate, strengthen the heart muscle, and improve cardiovascular efficiency. Regular physical activity is essential for maintaining a healthy weight, preventing childhood obesity, and improving metabolic functions, such as insulin sensitivity and lipid profiles. Schools should ensure that PE programs are inclusive, diverse, informative, and uniform to maximize their benefits (Nystoriak and Bhatnagar, 2018).

An organized School Physical Education (PE) program greatly enhances the physical and physiological fitness of school-age students. These programs enhance multiple facets of children's health and development, encompassing cardiovascular fitness, muscular strength and endurance, flexibility, coordination, balance, weight control, bone health, metabolic well-being, immune system functionality, mental well-being, and cognitive abilities (Wallhead and Buckworth, 2004).

Physical fitness is improved by engaging in activities such as running, swimming, cycling, calisthenics, resistance training, and gymnastics. These exercises raise the heart rate, strengthen the heart muscle, and improve the efficiency of the cardiovascular system. Engaging in strength-building exercises, such as calisthenics, resistance training, and gymnastics, promotes the development of main muscle groups, hence improving overall physical well-being.

Physical fitness additionally enhances flexibility, coordination, and balance, which are crucial for efficiently and securely carrying out regular activities. Engaging in regular physical activity is essential for maintaining a healthy weight and preventing childhood obesity (Drenowatz et.al., 2022). Physical fitness improves metabolic functions, including insulin sensitivity and lipid profiles, which can avoid metabolic illnesses such as type 2 diabetes and hyperlipidemia. Regular physical activity enhances the immune system by facilitating proper blood flow, alleviating symptoms of anxiety, depression, and stress, and enhancing sleep quality (Dhuli et.al., 2022).

In order to optimize the advantages of physical education programs, schools should guarantee that they are all-encompassing, diverse, informative, and uniform. Schools can have a significant impact on the development of individuals by implementing a variety of activities that are inclusive, diverse, and consistent, resulting in improved physical health and overall well-being.

MATERIAL AND METHODS

Subjects

Total 30 subjects were recruited from Andman and Nikobar Island. The mean age of the groups was 12.33 ± 0.84 years. The physiological and physical variables were measured before and after physical education training program for 10 weeks. All the participants selected were merely participated in exercise program.

Measurements

For the present study, data were collected on four variables as pre and post test measurements to determine the effects of a 10 - week physical education training program. The fitness variable namely 50-meter dash, upper body lift, static balance, and respiratory rate as prescribed by Baumgartner and Jackson (1995), AAHPER (1976), and AAHPERD (1980) and physiological (Goyal and Patel, 2005) variables were measured.

50M dash: This test measures short distance running speed. Subject ran 50m as quickly as possible, with ready and go command. At the end of the run time was measured in seconds with the help of stopwatch.

Upper body lift: This test measures upper back strength and endurance. The subject lies flat in prone position (belly facing downward) with a pillow under feet down and hands clasped behind the neck, the subject raised head, shoulders and chest. The time of upper body lift was recorded. Maximum time was awarded for holding the above said position for 10 seconds.

Static balance test: This test measures ability to maintain balance in a stationary position. The subjects stand on the foot of the dominant leg, other leg is placed on the inside of the knee of dominant leg. Total duration a subject maintained balance was recorded in seconds with help of stopwatch.

Respiratory rate: Breathing frequency was measured in one minute, time by a stopwatch. It was repeated three times and mean was taken.

Procedure and Description of the Training Program

A Physical education training program of 01:00 h 6 days /week for eight weeks was prepared. Each session was subdivided in to four sections warm-up, calisthenics exercises, recreational game and cool down. Warming-up period of 5 to 10 minutes consisted of slow stretching movements, which prepared the body for more vigorous activity. The duration of calisthenics exercise was 25-30 minute in which the exercise routines progressively demanded more endurance from the participants. The recreational game consists of 10-15 minute. The session was concluded with a 5-minute cool-down designed to lower the heart rate and relax the muscles. All students participated in regular physical

education program. The activities were selected on the basis of physical and physiological changes. Exercises were designed to develop cardio respiratory strength, endurance, coordination, flexibility, and motor ability. The systematically planned program was developed and special consideration was given to individual subject. Training program followed a continuum, which gradually increased as the fitness level of subject improved.

Pre and post treatment tests were conducted in both groups at the beginning and end of 10 week of training program. Training sessions were organized under the supervision of teachers of the institution.

Statistical Analysis

Data was analyzed with the help of descriptive analysis (Mean + SE) and SD was done and, comparative statistics *t*-test was used to observe difference in pre and post measurements.

RESULTS AND DISCUSSION

Table 1: Showing the effect of 10-week training on physical and physiological variables of students

| Variables | Pre-Test | | Post Test | | <i>t</i> -test | |
|---------------------|--------------|-------|--------------|-------|----------------|----------------|
| | M±SE | SD | M±SE | SD | t-value | p-value |
| 50M Dash | 29.13 ± 0.66 | 2.58 | 20.8 ± 1.06 | 4.10 | 6.61 | <i>p</i> <0.05 |
| Upper Back Strength | 2.73 ± 0.96 | 3.73 | 9.13 ± 0.38 | 1.50 | 6.16 | <i>p</i> <0.05 |
| Balance | 10.14 ± 4.83 | 18.71 | 41.53 ± 8.19 | 31.75 | 3.29 | <i>p</i> <0.05 |
| Respiratory | 31.53 ± 1.10 | 4.27 | 25.4 ± 0.86 | 3.35 | 4.37 | <i>p</i> <0.05 |

The result of the present study showed significant improvement in all four physical and physiological variables of physical fitness. 50M dash showed statistically (*p*<0.05) significant difference between pre and post test score. The Mean ± SE recorded were 29.13±0.66 and 20.8±1.06 for pre and posttest respectively. This can be explained as a positive effect of training on running speed.

Upper body strength was assessed to determine the strength and endurance of upper back muscle. The result showed significant difference (*p*<0.05) in between pre and post-test value in upper body strength. The pre and post Mean ± SE recorded were 2.73 ± 0.96, 9.13 ± 0.38 respectively.

Similarly, the static balance test result showed significant difference (*p*<0.05) between pre and post-test value. The pre and post Mean ± SE recorded were 10.13 ± 4.83, 41.53 ± 8.19 respectively. Respiratory rate result showed significant difference (*p*<0.05) between pre and post-test of both groups. The pre and post Mean ± SE recorded were 31.53±1.10, 25.4 ± 0.86 and 29.73 ± 0.94, respectively. This can be attributed to adaptive effect of training program on pulmonary function.

DISCUSSION

The study observed notable enhancements in four physical and physiological fitness characteristics as a result of a training program. The 50-meter sprint times exhibited a notable enhancement in running velocity, suggesting an advancement in muscle strength, power, and coordination. The study saw a notable improvement in upper body strength and endurance, which can be attributed to the resistance training elements. The static balance demonstrated a notable enhancement in equilibrium, suggesting an improvement in proprioception and neuromuscular coordination. The breathing rate shown a decrease, suggesting enhanced pulmonary function and efficiency. These enhancements indicate that a meticulously organized training regimen might result in extensive enhancements in physical fitness, hence contributing to enhanced athletic performance and general well-being. Subsequent research endeavors could investigate the enduring consequences of these training programs and their influence on diverse demographics in order to substantiate these

results. In summary, the study emphasizes the efficacy of the training program in improving overall levels of physical fitness.

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