

## **Effect of Physical Activity for Development of Physical Fitness among School Children in India**

**Prof. Rajesh Kumar**

**Principal and Chairman**

**University College of Physical Education, Osmania University, Hyderabad, T.S. India**

### **Abstract:**

Regular Physical activity is important for all Children's in Schools. The Objective of the present study is to find out the effect of physical exercises for development of physical fitness among school children in India. It is hypothesized that there will be effect of Physical activity for development of Physical fitness among school children. The sample for the Study consists of 40 School Children of Grade 9th and 10th between the age group of 13 to 15 Years out of 20 children are experimental group and 20 are Control group. Physical activities such as Running, Jumping, Throwing and playing sports and games were given to experimental group apart from regular physical education classes of calisthenics exercises for 8 weeks on alternate days per week and control group were attended general physical education class on alternate but no special training were given to improve the physical fitness. Pre Test and Post Test were conducted in the physical fitness items such as 30 M Run, Standing Broad Jump, Sit Ups, Shuttle Run and 600 M Run. The Results of the Study shows due to the physical activity programme the Schools Students experimental group improved a lot in the Physical fitness in Physical Tests compare to control group. Regular physical activity can help children to improve the Physical fitness, build strong bones and muscles, control weight, and reduce symptoms of anxiety and depression. It is concluded that physical exercises promote Physical fitness among school children. Hence the regular physical activity must be included in the physical education programmes in the Schools. Schools are in a unique position to help students attain the Physical education classes of daily physical activity to promote the physical fitness and good health.

**Key words:** Physical activity, Physical fitness, Running, Jumping, Throwing etc.

**Introduction:**

Physical activities help in developing students' competence and confidence. It helps them to take part in a wide range of physical activities that are crucial to their lives— both in and out of school. Physical fitness is the key ingredient for a healthy lifestyle. This is why physical education is an important element in most schools. When students have regular fitness activities as part of their daily regimen, they stay fit and healthy. Regular physical activities daily help in better absorption of nutrients in the body and also helps in improving cardiovascular health and developing muscular strength.

Regular physical activity can help to reduce the health risks associated with childhood obesity and chronic diseases. Furthermore, recent research suggests that increased physical activity has an effect on children's cognitive functions, such as executive functioning (e.g., working memory and cognitive flexibility) and brain health. However, these studies mostly focused on older children and teenagers, and further research is required to better understand the links between physical activity, health outcomes, and cognition during crucial periods of child development, especially early childhood. As a result, this particular issue fills a void in the literature gap in order to encourage further research activities in such a critical field. It includes one systematic study and 12 original research papers that looked at the pediatric population in early childhood, including healthy children and children with special needs.

A high-quality physical education program enables all students to enjoy and succeed in many kinds of physical activities. The importance of physical education programs is to help students to develop a wide range of skills as well as gives them the ability to use tactics, strategies, and newer ideas to perform successfully both at home and school

PE and School Sport can majorly contribute to agendas such as educational achievement, public health, community cohesion and of course sporting performance at the highest level. Sports, physical education, education and health are interlinked and together contribute significantly to holistic human resource development. Within schools, physical education is an essential component of quality education. Not only do physical education and sport programmes promote

physical activity, there is evidence that such programmes co-relate to improved academic performance.

Everyone can benefit from being physically fit. Staying fit can help improve academic performance, build confidence, prevent obesity, and decrease the risk of serious illnesses and regular physical activity can help teens learn to meet the physical and emotional challenges they face every day.

Schools are potentially attractive settings in which to promote positive health behaviors because students spend large amounts of time in the school environment, elements of the traditional school curriculum relate directly to health, and schools typically provide extracurricular programs that can promote health. Although academic performance stems from a complex interaction between intellect and contextual variables, health is a vital moderating factor in a child's ability to learn. The idea that healthy children learn better is empirically supported and well accepted (Basch, 2010), and multiple studies have confirmed that health benefits are associated with physical activity, including cardiovascular and muscular fitness, bone health, psychosocial outcomes, and cognitive and brain health (Strong et al., 2005).

### **Objectives of the study**

The Objective of the present study is to find out the effect of physical exercises for development of physical fitness among school children in India. It is hypothesized that there will be effect of Physical activity for development of Physical fitness among school children

### **Methodology**

The sample for the Study consists of 40 School Children of Grade 9th and 10th between the age group of 13 to 15 Years out of 20 children are experimental group and 20 are Control group. Physical activities such as Running, Jumping, Throwing and playing sports and games were given to experimental group apart from regular physical education classes of calisthenics exercises for 8 weeks on alternate days per week and control group were attended general physical education class on alternate but no special training were given to improve the physical fitness.

**Physical Activities Programme for a 8 Week on alternate days**

| Days     | Physical Exercises   | Repetitions and Sets   |
|----------|--|--|
| Tuesday  | Warming up for 20 min<br>Push ups,skipping, Jumps, sprints, sit ups<br>etc                             | 12 reps x 3 sets per exercises   |
| Thursday | Warming up for 20 min<br>Crunches, planks,crab walk, cycling etc                                       | 8-12 reps x 3 sets per<br>exercises  |
| Saturday | Warming up for 20 min<br>Medicine ball exercises,mountain<br>climbers, sprints, hopping, bounding etc. | 6-12 reps x 3 sets per<br>exercises<br>Hopping and bounding – 20 M<br>x 3 sets |

Pre Test and Post Test were conducted in the physical fitness items such as 30 M Run, Standing Broad Jump, Sit Ups, Shuttle Run and 600 M Run

The following Physical Fitness Tests are used for collection of Data.

- 1)30 M Run : Speed
- 2)Standing Broad Jump : Explosive Power
- 3)Sit Ups Test :Muscular endurance
- 4)T- Agility Run Test : Agility
- 5) 600 M Run: Endurance

## Results and Discussion

The Results of the Study shows due to the physical activity programme the Schools Students experimental group improved a lot in the Physical fitness in Physical Tests compare to control group.

**Table I:** Mean values of 30 M Run Test between experimental and control groups of SchoolStudents

| Variables | Group        | Pre Test<br>Mean $\pm$ SD | Post Test<br>Mean $\pm$ SD | T      | P - Value |
|-----------|--------------|---------------------------|----------------------------|--------|-----------|
| 30 M Run  | Experimental | 4.39 $\pm$ 0.084          | 4.10 $\pm$ 0.068           | 17.014 | 0.000*    |
|           | Control      | 4.45 $\pm$ 0.056          | 4.50 $\pm$ 0.049           | -4.067 | 0.001*    |

\*Significant at 0.05 level

In Table –I the Mean Values in 30 M Run of Experimental Group is 4.39 and Control Group is 4.45 inPre-Test and Post Test is Experimental Group is 4.10 and Control Group is 4.50. The Experimental Group has decreased from 4.39 to 4.10 in mean values due to Physical Exercises Training in Speed compare the Control group mean is 4.50 inpost test due to general training.

**Table II:** Mean values of Standing Broad Jump between experimental and control groups of School Students

| Variables              | Group        | Pre Test<br>Mean $\pm$ SD | Post Test<br>Mean $\pm$ SD | T       | P - Value |
|------------------------|--------------|---------------------------|----------------------------|---------|-----------|
| Standing<br>Broad Jump | Experimental | 2.35 $\pm$ 0.075          | 2.57 $\pm$ 0.068           | -15.964 | 0.000*    |
|                        | Control      | 2.31 $\pm$ 0.070          | 2.25 $\pm$ 0.083           | 3.943   | 0.001*    |

\*Significant at 0.05 level

In Table –II the Mean Values in Standing Broad Jump of Experimental Group is 2.35 and Control Group is 2.31 in Pre Test and Post Test is Experimental Group is 2.57 and Control Group is 2.25. The Experimental Group has increased from 2.35 to 2.57 in mean values due to Physical Exercises Training in Explosive Power compare the Control group mean is 2.25 in post test due to general training.

**Table III:** Mean values of Sit Ups between experimental and control groups of School Students

| Variables | Group        | Pre Test Mean $\pm$ SD | Post Test Mean $\pm$ SD | T       | P - Value |
|-----------|--------------|------------------------|-------------------------|---------|-----------|
| Sit ups   | Experimental | 32.9 $\pm$ 1.29        | 37.4 $\pm$ 0.82         | -18.291 | 0.000*    |
|           | Control      | 31.9 $\pm$ 1.45        | 31.5 $\pm$ 1.40         | 1.252   | 0.226     |

\*Significant at 0.05 level

In Table –III the Mean Values in Sit upsof Experimental Group is 32.9 and Control Group is 31.9 in Pre Test and Post Test is Experimental Group is 37.4 and Control Group is 31.5. The Experimental Group has increased from 32.9 to 37.4 in mean values due to Physical Exercises Training in muscular endurance of abdominal muscles compare the Control group mean is 31.5 in post test due to general training.

**Table IV:** Mean values of T- Agility Test between experimental and control groups of School Students

| Variables      | Group        | Pre Test Mean $\pm$ SD | Post Test Mean $\pm$ SD | T      | P - Value |
|----------------|--------------|------------------------|-------------------------|--------|-----------|
| T-Agility Test | Experimental | 11.07 $\pm$ 0.27       | 10.00 $\pm$ 0.32        | 26.246 | 0.000*    |
|                | Control      | 11.21 $\pm$ 0.258      | 11.21 $\pm$ 0.298       | -0.389 | 0.702     |

\*Significant at 0.05 level

In Table –IV the Mean Values in T-Agility Test of Experimental Group is 11.07 and Control Group is 11.21 in Pre-Test and Post Test is Experimental Group is 10.00 and Control Group is 11.21. The Experimental Group has decreased from 11.07 to 10.00 in mean values due to Physical Exercises Training in Agility compare the Control group mean is 11.21 in post test due to general training.

**Table V:** Mean values of 600 M run Test between experimental and control groups of School Students

| Variables        | Group        | Pre Test<br>Mean $\pm$ SD | Post Test<br>Mean $\pm$ SD | T      | P - Value |
|------------------|--------------|---------------------------|----------------------------|--------|-----------|
| <b>600 M Run</b> | Experimental | 1.52 $\pm$ 0.025          | 1.43 $\pm$ 0.028           | 10.457 | 0.000*    |
|                  | Control      | 1.53 $\pm$ 0.027          | 1.54 $\pm$ 0.021           | -3.707 | 0.001*    |

\*Significant at 0.05 level

In Table –V the Mean Values in 600 M Run of Experimental Group is 1.52 and Control Group is 1.53 in Pre Test and Post Test is Experimental Group is 1.43 and Control Group is 1.54. The Experimental Group has decreased from 1.52 to 1.43 in mean values due to Physical Exercises Training in endurance compare the Control group mean is 1.54 in post test due to general training.

## Conclusions

Regular physical activity can help children to improve the Physical fitness, build strong bones and muscles, control weight, and reduce symptoms of anxiety and depression. It is concluded that physical exercises promote Physical fitness among school children. Hence the regular physical activity must be included in the physical education programs in the Schools. Schools are in a unique position to help students attain the Physical education classes of daily physical activity to promote the physical fitness and good health. Researcher has also observed that there are improvements in leadership qualities on positive side at the early ages. After the research we have also found that physical activity has also significantly improved their discipline and social behavior. The flow of oxygen to the brain is increased. The number of brain neurotransmitters is

increased, which assists your ability to focus, concentrate, learn, remember and handle stress. The number of brain-derived neurotrophies is increased, which assures the survival of neurons in areas of the brain that are responsible for learning, memory and higher thinking. Physical activity is one of the best ways children can improve their health. Aim for at least one hour of activity daily, including aerobic, muscle-strengthening, and bone-strengthening exercises. Aside from health benefits, your children will likely do better in school, too.

**Recommendations:**

- Evidence suggests that increasing physical activity and physical fitness may improve academic performance and that time in the school day dedicated to recess, physical education class, and physical activity in the classroom may also facilitate academic performance.
- Physical Exercises to the students in schools will improve the Physical fitness, Health related fitness and specific fitness.
- Executive function and brain health underlie academic performance. Basic cognitive functions related to attention and memory facilitate learning, and these functions are enhanced by physical activity and higher aerobic fitness.
- Single sessions of and long-term participation in physical activity improve cognitive performance and brain health. Children who participate in vigorous- or moderate-intensity physical activity benefit the most.
- Given the importance of time on task to learning, students should be provided with frequent physical activity breaks that are developmentally appropriate.
- Although presently understudied, physically active lessons offered in the classroom may increase time on task and attention to task in the classroom setting.

**References:**

- Basch C. Healthier children are better learners: A missing link in school reforms to close the achievement gap. 2010. [October 11, 2011)
- Strong WB, Malina RM, Blimkie CJ, Daniels SR, Dishman RK, Gutin B, Hergenroeder AC, Must A, Nixon PA, Pivarnik JM, Rowland T, Trost S, Trudeau F. Evidence based physical activity for school-age youth. *Journal of Pediatrics*. 2005;146(6):732–737.
- Zan Gao, Senlin Chen, Haichun Sun, Xu Wen, and Ping Xiang “Physical Activity in Children's Health and Cognition”. *Biomed Res Int*. 2018; 2018: 8542403, Published online 2018 Jun 25. doi: 10.1155/2018/8542403
- Fisher A., Boyle J. M., Paton J. Y., et al. Effects of a physical education intervention on cognitive function in young children: randomized controlled pilot study. *BMC Pediatrics*. 2011;11(1):p. 97. doi: 10.1186/1471-2431-11-97. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
- Kwak L., Kremers S. P. J., Bergman P., Ruiz J. R., Rizzo N. S., Sjöström M. Associations between physical activity, fitness, and academic achievement. *Journal of Pediatrics*. 2009;155(6):19–24. doi: 10.1016/j.jpeds.2009.06.019. [PubMed] [CrossRef] [Google Scholar]
- Gao Z., Pope Z., Lee J. E., et al. Impact of exergaming on young children's school day energy expenditure and moderate-to-vigorous physical activity levels. *Journal of Sport and Health Science*. 2017;6(1):11–16. doi: 10.1016/j.jshs.2016.11.008. [CrossRef] [Google Scholar]
- Gao Z., Zhang T., Stodden D. Children's physical activity levels and psychological correlates in interactive dance versus aerobic dance. *Journal of Sport and Health Science*. 2013;2(3):146–151. doi: 10.1016/j.jshs.2013.01.005. [CrossRef] [Google Scholar]

- Gao Z., Hannan P., Xiang P., Stodden D. F., Valdez V. E. Video game-based exercise, Latino children's physical health, and academic achievement. *American Journal of Preventive Medicine*. 2013;44(3) Suppl 3:S240–S246. doi: 10.1016/j.amepre.2012.11.023. [PubMed] [CrossRef] [Google Scholar]