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## A SURVEY ON SELECTED PHYSICAL PROFILE OF SCHOOL GOING BOYS

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### ABSTRACT

The objective of the study was to survey the selected physical variables of school going boys and assess them in relation to the standard norms. 200 school boys of age 14 to 18 years were selected for the research. Five physical variables were selected named as flexibility, abdominal strength, power, speed and cardio-respiratory endurance and their test was conducted on subjects. The obtained values were compared to the standardized norms of mentioned test. Subjects were selected on random basis and data collected. The descriptive and sample t-test was used as statistical techniques for data analysis. The obtained result showed all the variable differed significantly from the standardised norms available for selected tests. The flexibility and cardio-respiratory ability of the subjects were found to be better than standards. However, they were at lower side against power, abdominal strength and speed normative values.

Keywords: Flexibility, Abdominal strength endurance, power, speed, endurance.

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## INTRODUCTION

The school is considered an excellent place to deliver students with an opportunity of daily physical activity, impart them the importance of regular physical activity and its role towards fitness and well-being, and build the skills that support active lifestyles (Active Living Research, 2007). It is vital that schools have an effective physical education program that has been designed precisely and is taught well to influence the physical, physiological and psychological well-being of children. The role of physical education teacher is vital for successful implementation of an effective Physical Education program. It is crucial that the teacher is motivated about serving children to achieve ideal fitness levels. The teacher should also be able to positively affect students' outlook towards importance of being fit by teaching, motivating and engaging the students through several educational tools as well as activities.

Much of a nation's future rest upon the status of its children. Healthy children are the foundation stones for a healthy nation. Many leaders around the world — Presidents, Prime ministers, Health ministers — have designated schools as an important setting in which children should develop behaviour and skills for physical, emotional and social well-being. Other than the family, no societal institution has greater impact on the lives of broods than schools. Every day masses of children and young people round the world go to school and spend a significant amount of time interacting with their peers, other students and teachers gaining knowledge, building attitudes and skills, and developing behaviours. Many behavioural patterns developed during childhood and adolescence is retained into adulthood(Weber, 1984). Schools, therefore, play a critical role in building healthier nations round the world. Schools provide an outstanding opportunity to enable students to obtain knowledge and skills and rise activity levels among young people as children and adolescents ideally spend a significant time of their young lives there and educational efforts can be put into action on a regular and continuous basis (WHO, 1996).

Role of physical education in maintaining good health is widely acknowledged, scientific studies have questioned the quality and quantity of Health & Physical Education lessons given in primary schools (Fairclough &, Stratton, 2005, Morgan & Hansen, 2008,



Micheli et al., 2011). Current studies have established optimistic results in improving Health related fitness, particularly cardio-respiratory fitness, via school-based interventions (Kriemler et al., 2011). However, several have failed to address the various components that effect behaviour in the school setting, make reference to credible learning theories or curriculum direction in intervention designs, or specifically target improvements in all of the Health-related fitness components. In addition, few studies have designed and tested multi-component programs to extend learning into the school playground and the home - potentially limiting the impact that the program has on health outcomes and behaviour change (Dobbins et al., 2009).

The World Health Organization (WHO) has published the Global Recommendations on Physical Activity and Health to address the declining physical activity (PA) and physical fitness (PF) levels of children and the corresponding increase in non-communicable diseases (NCDs). These recommendations are basic guidelines on the frequency, duration, intensity, type and total amount of physical activity needed for preventing NCDs. The WHO recommendations now outline that children of age group 6-17 years should participate in at least 60 minutes of moderate-to-vigorous physical activity every day, and to perform vigorous physical activity (high intensity), muscle-strengthening physical activity and bone-strengthening physical activity, at least three days per week (WHO 2010). Sedentary behavior, including watching television and working on computers, should be restricted to less than 2 hours per day during leisure time.

Childhood and adolescence are pivotal periods in life of an individual because these are formative years in which major physiological and psychological changes take place. Lifestyle and healthy/unhealthy behaviors of an individual turn into habits during these years, which has significant influence on that individual's adult behavior and health status.

## **PROCEDURE AND METHODOLOGY**

### **Selection of the subjects**

Testing for the normative study took place over a 10 months period. For the purpose of the study, 200 boys (senior group of 100 boys from 11<sup>th</sup> & 12<sup>th</sup> class and junior group of 100 boys from 9<sup>th</sup> & 10<sup>th</sup> class) of Delhi Government School S.K.V Padam Nagar were chosen. Prior consent to conduct the physical fitness test of the subjects was obtained from the school authorities.

### **Selection of the variables**

For the purpose of this study it was finalized to compare physical variables of boys. Therefore, following variables were selected for research purpose:

#### **INDEPENDENT VARIABLES**

- 1) Gender – Boys
- 2) Level – Senior & Junior

#### **DEPENDENT VARIABLES**

- 1) Physical Variables
  - Flexibility
  - Power
  - Abdominal strength endurance
  - Speed
  - Cardio Respiratory Endurance

### **Criterion measures**



Following criterion measures were used for the purpose of collecting data from the sample:

**TABLE**  
**List of Selected Variables**

S. No.	Variable	Test Item	Unit
1	Flexibility	Sit and Reach Test	Centimeters
2	Power	Vertical Jump	Inches
3	Abdominal Strength and Endurance	Curl- Up	Numbers
4	Speed	50 yard Run	Seconds
5	Cardio Respiratory Endurance	600 yard Run /Walk	Seconds

### **Data collection**

The research scholar personally contacted the Principal of school of Delhi and discussed the need and importance of the investigation taken. The scholar requested the school Principal to extend their cooperation for the study. The school authorities were ensured that they will be provided with the normative values & evaluation of their student on various aspects of physical variables. The authority were provided with an informed consent form which was duly signed prior to the implementation of testing programme either by the principal or the parents of the children being tested. Research team visited the school site on the permitted days for obtaining data on all the components. The data was collected by forming different stations for each test. The subject moved from one station to the other after the completion of test on a particular station. After arranging the stations, the research team started the data collection in the sequence mentioned above.

### **Statistical technique**

A detailed statistical evaluation for physical components after the collection of data from the subjects selected for the purpose of study: Descriptive statistics (Mean and Standard deviation). The obtained values from subjects were assessed in relation to standardized norms



with help of Sample T test. All the statistical techniques were applied by using SPSS software version 16.0.

## Result and discussion

### Descriptive statistics of physical variables

Variable	Mean	Std. Deviation
Flexibility (sit & reach)	33.53	7.722
Power (Vertical jump)	12.39	2.730
Abdominal strength endurance (Curl up)	23.32	6.487
Speed (50 meter)	9.850	1.0552
Cardio respiratory endurance (600 meter)	194.91	38.882

The obtained result represented in the table mean and standard deviation value for flexibility of boys was 33.53 and 7.722 respectively. The mean and standard deviation of physical variable power (vertical jump) for boys group was found 12.39 and 2.73 respectively. It was found in the table mean and standard deviation value for abdominal strength was 23.32 and 6.487 respectively. The mean and standard deviation of physical variable speed (50mtr) was  $9.85 \pm 1.0552$ . In last, the descriptive values for cardio-respiratory endurance (600 meter) were  $194.91 \pm 38.882$ .

The obtained value of all the physical variables were assessed on standardized value given in procedure of tests used in the study. All values were found significantly different at 0.05 level of significance. Flexibility was found bettered with  $t = 3.709$  ( $p = 0.00$ ). However, power, abdominal strength and speed were significantly lower than the standard values as their  $t$  values were -59.8, -33.37 and 33.64 respectively. But their cardio respiratory endurance was significantly better as their values were found to be  $t = 27.90$  ( $p = 0.00$ )

Variable	t	Sig
Flexibility (sit & reach)	3.709	0.000
Power (Vertical jump)	-59.8	0.000



Abdominal strength endurance (Curl up)	-33.37	0.000
Speed (50 meter)	33.64	0.000
Cardio respiratory endurance (600 meter)	27.90	0.000

## Conclusions & Recommendations

On the basis of obtained result, their interpretation and discussion, it was concluded that the selected physical variables of school going boys are significantly different than the standardized values of same tests. It was also concluded that Flexibility and Cardio respiratory endurance are the variables where subjects were better than the standard norms. Whereas, it was also concluded that their power, abdominal strength and speed ability were comparatively on lower side than the standards. In the light of the conclusion drawn from the present study the following recommendation are made: In order to improve the obvious weakness in muscular strength and muscular endurance, the school children are to be subjected to special physical education/ training programme. Health related fitness test should be conducted annually in schools throughout India in order to have fit citizens. Longitudinal and interventional studies are needed in order to clarify if changes in physical activity and cardio respiratory fitness may favorably influence the levels of CVD risk factors already in these ages and even into adulthood. Understanding the association between cardio respiratory fitness and CVD related outcomes in children and adolescence could help to establish whether cardio respiratory fitness could be prepared as a health marker or not at these ages. Having optimal values for cardio respiratory fitness health set from an early age could be useful to identify the target population for primary prevention, as well as for health promoter policies. In this regard, schools may play an important role; firstly by identifying children with low cardio respiratory fitness, and secondly by promoting positive health



behavior such as encouraging children to engage in physical activity as well as decreasing time spent in sedentary activities. Similar study can also be taken on various Age groups by same method. Similar study can be conducted by adopting some different types of physical variables.

## REFERENCES

- Agarwal, K., & Agarwal, D. (2003). *Growth - Infancy to Adolescence*. New Delhi: CBS Publishers and Distributors.
- Behringer, M., Vom Heede, A., Yue, Z., & Mester, J. (2010). Effects of Resistance training in Children and Adolescents: A Meta Analysis. *Pediatrics*, 126(5), 1199-1210.
- Caspersen, C., & al, e. (1985). *Physical Activity, Exercise and Physical Fitness definitions and Distinctions for Health Related Research*. Public Health Republic.
- Caterino, M.C., & Polak., a. E. (1999). Effects of two types of activity on the performance of second-, third- and fourth-grade students on a test of concentration. *Perceptual and Motor Skills*, 89(1), 245-248.
- Catley, M., & Tomkinson, G. (2013). Normative Health Related Fitness Values for children: Analysis of 85347 test results on 9-17 year old Australians since 1985. *British Journal of Sports Medicine*, 47(2), 98-108.
- Chatterjee, P. (2002). *India sees Parallel rise in Malnutrition and Obesity*. *Lancet*, 360.
- Coe, D.P., Pivarnik, J.M., Womak, C.J., . . . R.M., a. M. (2012). Health Related Fitness and Academic Achievement in Middle school Students. *Journal of Sports Medicine and Physical Fitness*, 52(6), 654-660.
- D.R., G., Damokosh, A., D.W., D., & C.S., a. B. (2003). Body Mass Index as a Predictor of Incident Asthma in a prospective cohort of children. *Pediatric Pulmonology*, 36(6), 514-521.
- Esmailzadeh, S., Kalantari, H., Nakhostin-Roohi., a., & B. (2013). Cardiorespiratory fitness, Activity level and Health Related Anthropometric variables, Sedentary Behaviour and Socio-economic Status in a sample of Iranian 7-11 year old boys. *Biology of Sports*, 30(1), 67-71.
- Faigenbaum, A.D., Loud, L., R.L., J., O., S, G., & W.L., a. W. (2001). Effects of different Resistance Training Protocols on upper Body-Strength and Endurance developments in Children. *Journal of Strength and Conditioning Research*, 15(4), 459-465.
- G., K., K., S., Mrgan., & Sports., a. J. (2013). How to ensure Muscular Endurance in Children: A New Approach. *Collegium Antropologicum*, 37(2), 385-390.

- Gupta, R., & Bedi, M. (2003). *Research Process and Studies in Physical Education and sports Sciences*. New Delhi: Friends Publications (India).
- J., K., A., M., G.M., F., G.M., G., M.W., C., V., K., . . . and Peterson., K. (2005). Relationship of Physical Fitness to prevalence and incidence of overweight among School Children. *Obesity Research*, 13(7), 1246-1254.
- K.F., J., J.D., D., & L.T., a. M. (2002). Increases in Physical Fitness during childhood increases cardiovascular health during adolescence: The Muscatine Study. *International Journal of Sports Medicine.*, 23(1), S15-S21.
- K.J., G., M.V., P., C., M., J., S., L., B., G., G., & M., a. W. (2011). Health Related fitness in children and Adolescence. *Pediatric Physical Therapy*, 23(03), 208-220.
- Kamlesh, M. (2011). *Physical Education (An Objective Perspective)*. New Delhi: Khel Sahitya Kendra Publications.
- L.J., H., L., N. A., & K., a. C. (2013). Getting to the heights of the matter. The relationship between stature and adiposity in Pre-Puberty Children. *Ethnicity and Disease*, 23(1), 71-76.
- Lieberman., L. J., & et. al. (2001). Health Related Fitness of Youth with visual impairment. *Journal of Visual Impairment amd amp; Blindness*.
- Lloyd., L., Bishop., P., Walker., J., Sharp., K., & and Richardson., M. (2003). The influence of body size and composition on FITNESSGRAM Test Performance and the adjustment of FITNESSGRAM Test Scores for Skinfold Thickness in Youth. *Measurement in physical Education and Exercise Science.*, 7(4), 205-226.
- Lofgren., B., Daly., R., Neilson., J., Dencker., M., & M.K., a. K. (2013). An increase in School based physical education increases Muscles Strength in children. *Medicine and Science in Sports and Exercise*, 45(5), 997-1003.
- Marta, CC., Marinho, DA., Barbosa, TM., Izquierdo, M., & Marques, MC. (2012). Physical fitness differences between prepubescent boys and girls. *J strength cond res* ,26(7), 1756-1766.
- M., F., o., N., M., P., E., M., & T., a. S. (1999). Parent Child Relationship of Physical Activity Pattern and Obesity. *International journal of Obesity.*, 23(12), 1262-1268.
- Medicine, A. C. (1990). *The Recommended Quantity and Quality of exercise for Developing and Maintaining Cardiorespiratory and Muscular Fitness in Healthy Adults*. Medicine Science Sports Exercise.
- Medicine, A. C. (1992). *ACSM Fitness Book Campaign, II*. Leisure Press.
- Medicine., A. C. (1991). *Guidelines for Exercise Testing and Prescription*. Philadelphia: Lea and Febriger.



- Morgan., P., & and Hansen., V. (n.d.). Classroom Teachers Perception of the impact of barriers to teaching Physical education on the quality of Physical education Program. *Research Quarterly Exercise Sport*, 79(4), 506-516.
- Morris., J., Gorely., T., Sedgwick., M., Nevil., A., & and Nevil., M. (2013). Effect of the great Activity program on Healthy Lifestyle Behaviour in 7-11 year olds. *Journal of Sports Sciences*.
- Must., A., & and Tybor., D. (2005). Physical Activity and Sedentary Behaviour: A Review of longitudinal studies of Weight and Adiposity in Youth. *International Journal of Obesity (London)*.
- Ortega., F., Ruiz., J., Castillo., M., & and Sjostrom., M. (n.d.). Pediatric Review: Physical Fitness in Childhood and Adoloscence: a Powerfull marker of Health. Overview. *American Journal Preventive Medicine.*, 41(2), 63-67.
- Ozdirenc., M., Ozcan., A., Akin., F., & and Gelecek., N. (2005). Physical Fitness in Rural children compared with urban children in Turkey. *Pediatrics International.*, 47(1), 26-31.
- Remmers., T., Sleddens., E., Gubbles., J., de Vries., S., Mommers., M., Penders., J., . . . and Thijs., C. (2013). Relationship between Physical Activity and the Development of BMI in children. *Medicine and Science in Sports and Exercise*.
- Ruiz., J., Castero Pinero., J., Artero., E., Ortega., F., Sjostrom., M., Suni., J., & and Castillo., M. (2009). Predictive Validity of health related Fitness in Youth: A systematic Review. *British Journal of Sports Medicine*.
- Rosenberg, M. (1965). Society and the adolescent self-image. *Princeton, NJ: Princeton University Press*.
- S.J., L., & and Arslanian., S. (2007). Cardiorespiratory Fitness and adiposity in youth. *European Journal of Clinical Nutrition*, 61, 561-565.
- Sallis., J., McKenzie., T., & and Alcaraz., J. (1993). Habitual Physical Activity and Health Related Physical fitness in fourth grade children. *American Journal of Diseases of Children*, 147(8), 890-896.
- Sayers., B., Farley., R., Fuller., D., Morgan., D. W., & and Caputto., J. (2009). Physical Fitness and academic Acheivement in Elementary School Children. *Journal of Physical Activity and Health*, 6(1), 99-104.
- Sergej., M., Ostojic., M. D., Stojanovic., V. S., & Njaradi., a. N. (2011). Correlation between Fitness and Fatness in 6-14 year old Serbian School children. *Journal Health Popular Nutrition*, 29(1), 53-60.
- Sharma, S. (2009). *A Study On The Association Between Self Esteem And Stress In Adolescents*.



- Singh, A. e. (2000). *Essentials of Physical Education*. Kalyani Publications.
- Simmons, R.G., Rosenberg, F., & Rosenberg, M. (1973). Disturbance in the self-image at adolescence. *American Sociological Review*, 38, 553-568.
- Sloan., R. A., & et. al. (n.d.). Association between Cardio respiratory fitness and Health related quality of Life, Licensee bio Med Central Ltd.
- Strong., W., Malina., R., Blimkie., C., Daniels., S., Dishman., R., Gutin., B., . . . and Trudeau. F. Et. Al. (2005). Evidence based Physical activity for School age Youth. *Journal of Pediatrics.*, 146(6), 732-737.
- Suton., D., Pfeiffer., K., Feltz., D., Yee., K., Eisenmann., J., & and Carlson., J. (2013). Physical Activity and Self Efficacy in normal and Overfat children. *American Journal of Health Behaviour.*, 37(5).
- Svien., L. (2003). Health Related Fitness of Seven to ten year old children with histories of pre-term birth. (74-83, Ed.) *Pediatric Physical Therapy.*, 15(2).
- Ujevic., T., Sporis., G., Milanovic., Z., Pantelic., S., & and Neljak., B. (2013). Differences between Health Related Physical Fitness Profiles of Croatian Children in Urban and Rural Areas. *Collegium Anthropologicum*, 37(1), 75-80.
- Vician., J., Mayorga Vega., D., & and Cocca., A. (2013). Effects of maintainance Resistance Training Program on Muscular strength in School Children. *Kinsiology.*, 45(1), 82-91.
- Wong., S., Katzmarzyk., P., Nichaman., M., Church., T., Blair., S., & and Ross., R. (2004). Cardiorespiratory Fitness is associated with lower abdominal fat independent of body mass index. *Medicine Science Sports Exercise.*, 36, 286-291.
- Wylie, R. C. (1974). The self-concept. Revised edition. Lincoln, Nebraska: *University of Nebraska Press*.
- Y.C., H., & R.M., a. M. (2010). Body Mass Index and Individual Physical fitness test in Taiwanese youth aged 9-18 years. *International Journal of Pediatric and Obesity*, 5(5), 404-411.
- Zhang., Y. X., & and Wang., S. (2013). Changes in Skinfold thickness and body composition among children and adoloscent in Shandong, China from 1995 to 2010. *Journal of Human Nutrition and Dietetics*, 26(3), 252-258.
- Department of Health Physical Activity Health Improvement and Prevention (2004) At least 5 a week: Evidence on the Impact of Physical Activity and its relationship with Health. London, UK. Ref Type: Report
- King, A., Wold, B., Tudor-Smith, C., and Harel, Y. (1999). The Health of Youth: A Cross-National Survey. Canada, World Health Organisation. Ref Type: Report



Nixon, P.A. (1996). Role of Exercise in the evaluation and management of Pulmonary Disease in Children and youth.

Weber, E. (1984) Ideas influencing Early childhood Education. New York: Teachers college press, Columbia university.

WHO Information Series on School Health for Promoting Physical activity in Schools.

WHO. (2010). Global Recommendations on Physical activity for Health. Geneva: World Health Organisation.

WHO. (1995) Physical status: the use and interpretation of Anthropometry. Report of a WHO Expert Committee. WHO Technical Report Series 854. Geneva: World Health Organisation.

WHO (2000) Obesity: Preventing and managing the global Epidemic. Report of a WHO Consultation. WHO Technical Report Series 894. Geneva: World Health Organizations.

WHO (2004) Expert Consultation. Appropriate Body Mass Index for Asian Population and its implication for Policy and Intervention Strategies. The Lancet, 157-163.

<https://www.randall.k12.wi.us/cms/lib/WI01001877/Centricity/Domain/52/Fitness%2>

<http://www.who.int/dietphysicalactivity/pa/en/>

<http://www.who.int/dietphysicalactivity/publications/physical-activity-recommendations-5-17years.pdf>

<https://journals.humankinetics.com/doi/pdf/10.1123/jpah.2016-0393>

[http://apps.who.int/iris/bitstream/10665/119071/1/EMHJ\\_2001\\_7\\_4-5\\_658\\_661.pdf](http://apps.who.int/iris/bitstream/10665/119071/1/EMHJ_2001_7_4-5_658_661.pdf)

<https://www.verywellfit.com/what-is-muscular-endurance-3120360>

<http://www.k-state.edu/kines/kineseducation/whatispa.html>

[https://en.m.wikipedia.org/wiki/Physical\\_fitness](https://en.m.wikipedia.org/wiki/Physical_fitness)

<https://www.dictionary.com>

<https://www.myfit.ca>

<http://www.answerfitness.com>

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