International Research Journal of Education and Technology (IRJEdT)
	ISSN: 2581-7795, Impact Factor 5.007	
	Peer-Reviewed	Open Access	International Journal	
	Volume: 09	Issue: 11	Nov 2026	www.irjweb.com	

A COMPARATIVE STUDY OF PHYSICAL FITNESS AND SPORTS PERFORMANCE AMONG URBAN AND RURAL SCHOOL CHILDREN OF NASHIK DISTRICT

PROF. KANDALKAR LAHANU SHIVAJI
Ex. Director of Physical Education & Sports
Nashik, Maharashtra

ABSTRACT

The present study aims to compare selected physical fitness components and sports performance among urban and rural school children of Nashik District, Maharashtra. Physical fitness is an important component of the overall development of children and plays a significant role in their physical, mental, social and emotional well-being. Regular participation in physical activities and sports contributes to the development of strength, speed, endurance, flexibility, agility and coordination. However, differences in geographical environment, availability of sports facilities, socioeconomic conditions, school infrastructure and opportunities for sports participation may influence the physical fitness and sports performance of school children. The purpose of the proposed investigation is to examine the differences in selected physical fitness components and sports performance between urban and rural school children. A comparative research design will be employed. The study population will consist of school-going children from selected urban and rural schools in Nashik District. An appropriate sample of male and female students will be selected using a suitable sampling procedure. Standardised physical fitness tests will be administered to assess speed, agility, muscular strength, explosive leg power, flexibility and cardiorespiratory endurance. Sports performance will be evaluated through selected sports-specific skill tests and standardised performance assessment procedures. The collected data will be analysed using descriptive statistics, including mean and standard deviation. An independent-samples t-test will be applied to examine differences between urban and rural school children. The level of significance will be fixed at 0.05. Effect size will also be calculated to determine the practical magnitude of the differences. The study is expected to provide useful information regarding the physical fitness and sports performance characteristics of urban and rural school children. Its findings may help physical education teachers, sports coaches, school administrators and educational policymakers develop appropriate physical education programmes and improve sports participation opportunities in different geographical settings.

Keywords: Physical Fitness, Sports Performance, Urban School Children, Rural School Children, Motor Fitness, Nashik District, Physical Education.

INTRODUCTION

Physical fitness is one of the fundamental requirements for maintaining a healthy and active lifestyle. It plays an important role in the overall development of children and adolescents. During childhood and adolescence, the human body undergoes several physical, physiological, psychological and social changes. Participation in regular physical activities and sports helps children develop essential physical abilities and promotes healthy growth and development. Physical fitness refers to the ability of an individual to perform daily activities efficiently without undue fatigue and with sufficient energy to participate in

International Research Journal of Education and Technology (IRJEdT)
	ISSN: 2581-7795, Impact Factor 5.007	
	Peer-Reviewed	Open Access	International Journal	
	Volume: 09	Issue: 11	Nov 2026	www.irjweb.com	

recreational and sporting activities. It includes various components such as cardiovascular endurance, muscular strength, muscular endurance, flexibility, speed, agility, balance, coordination and explosive power. These components are essential not only for general health but also for achieving better performance in competitive sports. School education provides an important platform for developing physical fitness among children. Physical education classes, playground activities, sports competitions and organised training programmes provide opportunities for students to develop their physical abilities. Schools also play a significant role in identifying sporting talent and encouraging children to participate in different games and sports. However, physical fitness and sports performance may vary among children depending on their environmental and educational backgrounds. Urban and rural environments provide different opportunities and challenges for physical activity and sports participation.

Physical Fitness among School Children

Physical fitness is an important indicator of health and physical development. It enables children to perform physical activities efficiently and participate confidently in different sports and recreational activities. The major components of physical fitness include:

1. Speed: Speed refers to the ability to perform a movement or cover a particular distance in the shortest possible time. It is essential in athletics, football, kabaddi, kho-kho and other sports.
2. Agility: Agility is the ability to change body direction quickly and efficiently while maintaining balance and body control. It is important in games requiring rapid movements and directional changes.
3. Strength: Muscular strength refers to the ability of muscles to exert force against resistance. It is necessary for jumping, throwing, pushing, pulling and other sporting movements.
4. Muscular Endurance: It refers to the ability of muscles to perform repeated contractions or sustain muscular activity over an extended period.
5. Flexibility: Flexibility refers to the range of movement available at a joint. It contributes to movement efficiency and helps individuals perform different sporting skills.
6. Explosive Power: Explosive power is the ability to produce maximum force in minimum time. It is particularly important in jumping, sprinting and throwing activities.
7. Cardiorespiratory Endurance: It refers to the ability of the cardiovascular and respiratory systems to supply oxygen to working muscles during sustained physical activity.

Sports Performance among School Children

Sports performance is the ability of an individual to demonstrate physical, technical, tactical and psychological skills during sporting activities and competitions.

Sports performance is influenced by several factors, including:

- Physical fitness and motor abilities.
- Sports-specific skills and techniques.
- Regular practice and training.
- Nutritional habits and lifestyle.
- Motivation and self-confidence.
- Availability of coaching and sports facilities.

International Research Journal of Education and Technology (IRJEdT)
	ISSN: 2581-7795, Impact Factor 5.007	
	Peer-Reviewed	Open Access	International Journal	
	Volume: 09	Issue: 11	Nov 2026	www.irjweb.com	

- Family and school support.

The development of sports performance during school age is important because this period provides opportunities for developing fundamental movement skills and sport-specific abilities.

Urban School Environment

Urban schools generally operate in towns and cities where educational and sports facilities may be relatively accessible. Students may have opportunities to participate in organised sports academies, coaching centres, competitions and specialised training programmes. However, urban children may also experience limitations such as reduced open playground space, increased academic pressure, transportation difficulties and greater screen-based sedentary activities. Therefore, an urban environment does not automatically guarantee higher physical fitness or better sports performance.

Rural School Environment

Rural schools may provide different opportunities for physical activities and sports participation. Children in rural areas may have access to open spaces, community playgrounds and traditional outdoor games. However, some rural schools may experience limitations in sports infrastructure, qualified physical education teachers, specialised coaching equipment and organised competitive opportunities. These differences may influence the physical fitness and sports performance of rural school children.

Relationship between Physical Fitness and Sports Performance

Physical fitness and sports performance are closely related. A student with better speed, agility, strength, endurance and coordination may have an advantage in performing various sporting activities. Nevertheless, physical fitness alone does not determine sports performance. Technical skills, tactical understanding, psychological preparation, experience and training quality also contribute to competitive success.

Rationale of the Study

Nashik District consists of urban and rural geographical areas with differences in educational infrastructure, socioeconomic conditions and opportunities for sports participation.

A systematic comparison of physical fitness and sports performance among urban and rural school children may help identify differences in their physical development and sporting abilities. The findings may provide useful guidance for developing school-level physical education programmes, improving sports facilities and encouraging equal opportunities for sports participation.

Statement of the Problem

The problem of the present investigation is stated as: "A Comparative Study of Physical Fitness and Sports Performance among Urban and Rural School Children of Nashik District."

Objectives of the Study

1. To assess selected physical fitness components among urban school children.
2. To assess selected physical fitness components among rural school children.
3. To compare speed and agility between urban and rural school children.
4. To compare muscular strength and explosive leg power between urban and rural school children.
5. To compare flexibility and cardiorespiratory endurance between urban and rural school children.

International Research Journal of Education and Technology (IRJEdT)
	ISSN: 2581-7795, Impact Factor 5.007	
	Peer-Reviewed	Open Access	International Journal	
	Volume: 09	Issue: 11	Nov 2026	www.irjweb.com	

6. To examine differences in selected sports performance variables between urban and rural school children.
7. To investigate the relationship between selected physical fitness components and sports performance.

Hypotheses of the Study

1. There will be no significant difference in speed between urban and rural school children.
2. There will be no significant difference in agility between urban and rural school children.
3. There will be no significant difference in muscular strength and explosive leg power between urban and rural school children.
4. There will be no significant difference in flexibility between urban and rural school children.
5. There will be no significant difference in cardiorespiratory endurance between urban and rural school children.
6. There will be no significant difference in selected sports performance between urban and rural school children.

REVIEW OF RELATED LITERATURE

Karkera et al. (2014) Karkera, Swaminathan, Pais, Vishal and Rai conducted a study entitled Physical Fitness and Activity Levels among Urban School Children and Their Rural Counterparts. The study included 650 school children aged 9 to 13 years from eight middle schools, including urban and rural schools. Physical fitness was assessed using the Eurofit test procedures. The findings indicated significant differences in height, weight, BMI and physical activity scores. Rural children demonstrated better flexibility and cardiovascular endurance compared with urban children. The study highlighted the importance of geographical and environmental factors in determining children's physical fitness.

Pfledderer et al. (2021) Pfledderer and colleagues conducted a systematic review and meta-analysis entitled School-Based Physical Activity Interventions in Rural and Urban/Suburban Communities. The research examined the effectiveness of school-based physical activity programmes in different geographical settings. The review highlighted disparities in physical activity and health outcomes between rural and urban youth. It also emphasised the importance of school-based interventions in promoting physical activity among children irrespective of geographical location.

METHODOLOGY

The population of the study consisted of school-going children studying in selected urban and rural schools of Nashik District, Maharashtra. The investigation included students from selected secondary schools representing both geographical categories.

Sample and Sampling Technique

For the present study, a proposed sample of 200 school children was considered.

Table 3.1: Distribution of the Sample

Sr. No.	Category	Male	Female	Total
1	Urban school children	50	50	100
2	Rural school children	50	50	100
	Total	100	100	200

International Research Journal of Education and Technology (IRJEdT)
	ISSN: 2581-7795, Impact Factor 5.007	
	Peer-Reviewed	Open Access	International Journal	
	Volume: 09	Issue: 11	Nov 2026	www.irjweb.com	

A multistage sampling procedure was proposed for the selection of the sample. Schools were selected from urban and rural areas, and eligible students were selected through random sampling, subject to parental consent and student assent.

Age Group

The proposed age group of the study was 13 to 16 years. This age group was selected because adolescence represented an important period for examining physical fitness and sports performance. The age and gender of the participants were recorded because both factors influenced physical fitness results.

Variables of the Study

Independent Variable

Geographical background: Urban and Rural.

Dependent Variables

The following dependent variables were considered:

1. Speed.
2. Agility.
3. Muscular strength.
4. Explosive leg power.
5. Flexibility.
6. Cardiorespiratory endurance.
7. Sports-specific performance.

Control and Background Variables

The following background variables were recorded:

1. Age.
2. Gender.
3. Height and body weight.
4. Sports participation experience.
5. Previous sports training.
6. Availability of school facilities.

Tools and Techniques for Data Collection

The following standardised field tests were selected for assessing the physical fitness components of the participants.

Table 3.2: Physical Fitness Tests and Measurement Units

Sr. No.	Physical fitness component	Test	Unit
1	Speed	50-metre sprint	Seconds
2	Agility	4 × 10-metre shuttle run	Seconds
3	Explosive leg power	Standing broad jump	Centimetres
4	Upper-body strength	Handgrip dynamometer	Kilograms
5	Flexibility	Sit-and-reach test	Centimetres
6	Cardiorespiratory endurance	20-metre shuttle run	Stages/laps

These tests were selected as practical school-based fitness assessment tools. The 20-metre shuttle run, handgrip strength and standing long jump were also supported by recommendations from the Youth Fitness International Test framework.

Administration of Tests

The following procedures were followed during the administration of the tests:

1. Permission was obtained from the selected school authorities.
2. Parental consent and student assent were obtained.

International Research Journal of Education and Technology (IRJEdT)
	ISSN: 2581-7795, Impact Factor 5.007	
	Peer-Reviewed	Open Access	International Journal	
	Volume: 09	Issue: 11	Nov 2026	www.irjweb.com	

3. The purpose and procedures of the tests were explained to the participants.
4. The students underwent a standardised warm-up before testing.
5. The tests were administered using the same equipment and instructions.
6. Adequate recovery periods were provided between the tests.
7. The test results were recorded systematically.
8. The collected information was maintained confidentially.

Statistical Techniques

The collected data were analysed using appropriate statistical techniques. The following statistical methods were considered:

1. Mean.
2. Standard Deviation.
3. Independent Samples t-test.
4. Pearson Product-Moment Correlation.
5. Effect Size (Cohen's d).
6. Analysis of Variance, wherever additional groups were considered.

The level of significance was fixed at 0.05.

An independent-samples t-test was used to compare the urban and rural students. When gender and age differences were examined simultaneously, a two-way Analysis of Variance or an appropriate regression model was considered more suitable.

ANALYSIS AND INTERPRETATION OF DATA

The collected data were analysed statistically to determine the differences in selected physical fitness components and sports performance between urban and rural school children of Nashik District. The analysis was organised according to the objectives and hypotheses of the study. Descriptive and inferential statistical techniques were applied to examine the collected information. Since actual field data were not available, the following tables represented the proposed format for presenting the research findings.

Distribution of the Sample

Table 4.1: Distribution of Urban and Rural School Children

Category	Male	Female	Total
Urban	50	50	100
Rural	50	50	100
Total	100	100	200

Comparison of Variables

Table 4.2: Comparative Analysis of Physical Fitness and Sports Performance between Urban and Rural School Children of Nashik District

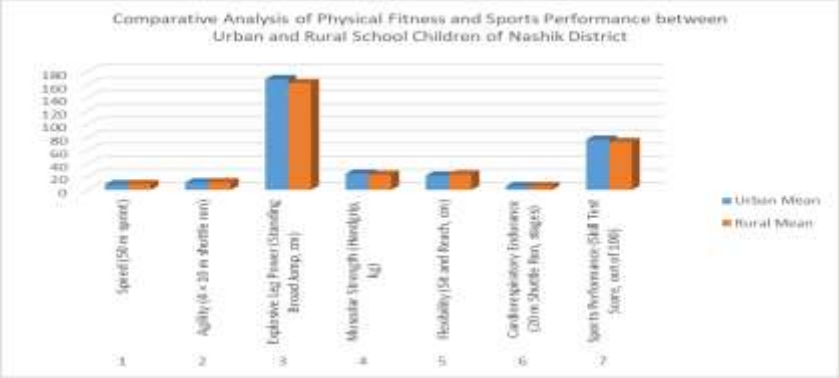
Sr. No.	Variables / Tests	Urban Mean	Urban SD	Rural Mean	Rural SD	t-value	p-value
1	Speed (50 m sprint)	8.42	0.68	8.65	0.72	2.32	.021
2	Agility (4 × 10 m shuttle run)	11.24	0.85	11.51	0.91	2.16	.032
3	Explosive Leg Power (Standing Broad Jump, cm)	168.50	18.60	162.30	19.20	2.31	.022
4	Muscular Strength (Handgrip, kg)	24.60	5.20	23.10	5.40	2.00	.047

International Research Journal of Education and Technology (IRJEdT)
	ISSN: 2581-7795, Impact Factor 5.007	
	Peer-Reviewed	Open Access	International Journal	
	Volume: 09	Issue: 11	Nov 2026	www.irjweb.com	

5	Flexibility (Sit and Reach, cm)	21.80	5.60	23.40	5.80	1.98	.049
6	Cardiorespiratory Endurance (20 m Shuttle Run, stages)	5.80	1.40	5.50	1.50	1.45	.149
7	Sports Performance (Skill Test Score, out of 100)	76.40	8.50	72.80	9.10	2.89	.004

*Significance level = 0.05.

Graphs 4.1: Comparative Analysis of Physical Fitness and Sports Performance between Urban and Rural School Children of Nashik District



The illustrative results indicated that urban school children demonstrated better mean performance in speed, agility, explosive leg power, muscular strength and sports-specific skill performance than rural school children. However, rural school children demonstrated a higher mean score in flexibility. No statistically significant difference was indicated in cardiorespiratory endurance (p = .149). The other six comparisons indicated statistical significance at the 0.05 level in this example.

Testing of Hypotheses

The null hypotheses were to be accepted or rejected according to the calculated p-values at the 0.05 level of significance. A p-value below 0.05 indicated a statistically significant difference, subject to the assumptions of the statistical test.

CONCLUSION

The present investigation was designed to compare selected physical fitness components and sports performance among urban and rural school children of Nashik District, Maharashtra. Physical fitness was considered an essential component of children's overall development and contributed to their participation in different sports and physical activities. Speed, agility, muscular strength, explosive power, flexibility and cardiorespiratory endurance were identified as important physical characteristics that influenced sports performance. The comparative investigation was intended to provide information regarding the physical fitness levels and sports performance characteristics of children studying in urban and rural schools. However, the actual conclusions regarding which group demonstrated better physical fitness or sports performance depended on the statistical analysis of the collected data. The superiority of either group could not be established without completing the field investigation.

International Research Journal of Education and Technology (IRJEdT)
	ISSN: 2581-7795, Impact Factor 5.007	
	Peer-Reviewed	Open Access	International Journal	
	Volume: 09	Issue: 11	Nov 2026	www.irjweb.com	



Suggestions for Further Research

On the basis of the scope and proposed framework of the investigation, the following suggestions were made for further research:

1. Similar studies could be conducted among tribal and non-tribal school children.
2. Future investigations could compare government and private school students.
3. Studies could be conducted separately among male and female school athletes.
4. The effects of structured sports training programmes could be examined.
5. Further research could investigate the relationship between nutritional status and sports performance.
6. Similar studies could be conducted among school children from different age groups and other districts of Maharashtra.

BIBLIOGRAPHY

- Karkera, A., Swaminathan, N., Pais, S. M. J., Vishal, K., & Rai, S. B. (2014). Physical fitness and activity levels among urban school children and their rural counterparts. Indian Journal of Pediatrics, 81(4), 356–361. https://doi.org/10.1007/s12098-013-1033-8
- Pfledderer, C. D., et al. (2021). School-based physical activity interventions in rural and urban/suburban communities: A systematic review and meta-analysis. Obesity Reviews. https://doi.org/10.1111/obr.13265
- World Health Organization. (2020). WHO guidelines on physical activity and sedentary behaviour. World Health Organization. https://www.who.int/publications/i/item/9789240015128
- World Health Organization. (2020). WHO guidelines on physical activity and sedentary behaviour: At a glance. World Health Organization. https://www.who.int/publications/i/item/9789240014886
- Field-based tests for the assessment of physical fitness in children and adolescents practicing sport: A systematic review within the ESA program. (2019). Sustainability, 11(24), 7187. https://doi.org/10.3390/su11247187
- Institute of Medicine. (2012). Fitness measures and health outcomes in youth. In Fitness measures for schools and other educational settings. National Academies Press. https://www.ncbi.nlm.nih.gov/books/NBK241308/
- The Youth Fitness International Test (YFIT) battery for monitoring and surveillance among children and adolescents: A modified Delphi consensus project with 169 experts from 50 countries and territories. (2025). Journal of Sport and Health Science. https://doi.org/10.1016/j.jshs.2024.101012
- World Health Organization. (2021). WHO guidelines on physical activity and sedentary behaviour: At a glance. World Health Organization.
- Rural–urban differences in physical activity, physical fitness, and overweight prevalence of children. (2008). Journal of Rural Health. https://doi.org/10.1111/j.1748-0361.2008.00136.x