P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (RJIF): 5.93
IJPESH 2025; 12(5): 11-13

https://www.kheljournal.com
Received: 09-06-2025
Accepted: 11-07-2025

Dr. Komal Jain
Assistant Professor, Department of Physical Education, Govt. Arts and Sports College, Jalandhar, Punjab, India

Corresponding Author:
Dr. Komal Jain
Assistant Professor, Department of Physical Education, Govt. Arts and Sports College, Jalandhar, Punjab, India

A comparative study of physical fitness variables of female football and basketball players

Komal Jain

DOI: https://www.doi.org/10.22271/kheljournal.2025.v12.i5a.3948

Abstract
The research aimed to assess the physical fitness levels of football and basketball players from Government Senior Secondary Girls School located on Mall Road in Amritsar, Punjab. A total of 15 players from both the games were chosen for this investigation. The study focused on several fitness metrics, including flexibility assessed by the sit and reach test (1952), strength measured with the vertical jump test (1921), speed evaluated through the 50m dash test (1977), agility tested via the shuttle run test (1986), and cardiovascular fitness gauged by the Cooper 12-minute run-walk test (1968). The gathered data was processed using a t-test at a significance level of 0.05. The analysis revealed no significant differences in vertical jump, 50m dash, and shuttle run performance among the groups, but a notable difference was found regarding sit and reach and Cooper 12-minute run-walk test results between the two sets of athletes.

Keywords: Football players, basketball players, flexibility, strength, speed, agility, cardio-vascular fitness

Introduction
Physical fitness refers to an overall condition of health and wellness or, more specifically, the capacity to engage in various sports or job-related tasks. Typically, physical fitness is attained through proper nutrition, regular exercise, good hygiene, and adequate rest. It encompasses a range of qualities or traits that individuals possess or develop that relate to their capability to carry out physical activities.

In today's world, having a healthy body, free from any ailments, is considered one of the most valuable assets a person can have. The significance of physical fitness and exercise, tailored to meet the unique needs of both the young and the elderly, has contributed to the rise in popularity of exercise equipment. The widespread availability of gyms and fitness centers further emphasizes the importance of staying physically fit. As a result, people are enjoying longer and healthier lives, something their ancestors could hardly have imagined.

Being physically fit enhances our overall well-being and contributes positively to our future health. It boosts heart health and endurance levels. Engaging in consistent physical activity can also strengthen your heart. Additionally, maintaining physical fitness enhances blood flow, ensuring that oxygen and nutrients reach every part of the body. This not only supports muscle development and overall strength but also enhances the muscles' capacity to generate force and maintain contractions. Physical fitness improves your body’s flexibility, and regular exercise leads to a reduction in body fat. It increases lean muscle mass, creating a balanced and healthy body composition.

Engaging in regular physical activity can help reduce feelings of tension, anxiety, depression, and anger. You may experience a sense of well-being right after exercising, and most individuals also report an enhancement in their overall health over the weeks and months as exercise becomes integrated into their daily routine. Physical activity boosts the oxygen flow, which has a direct impact on the brain. Further research is required on the variables already studied, along with physiological factors, to explore the relationships between them and their effects on performance in both team and individual sports.

Methodology

The research focused on comparing physical fitness levels between two groups of subjects, consisting of 15 football players and 15 basketball players aged between 16 and 19 years. These subjects were randomly chosen from the Government Senior Secondary Girls School located on Mall Road in Amritsar. Throughout the data collection phase, participants were prohibited from taking part in any competitions aside from their regular training routines.

The following variables were selected for the purpose of the study: Flexibility Test (Sit and Reach Test, 1952), Strength Test (Vertical Jump Test, 1921), Speed Test (50m dash test, 1977), Agility (Shuttle Run Test, 1986), Cardio-vascular Fitness Test (Cooper 12 minute Run-Walk Test, 1968). Data was analyzed by using t-test at 0.05 significance.

Data Analysis and Results

Table 1 showed the performance of Football players on fitness variables and Table-2 showed the performance of Basketball players on physical fitness variables.

Table 1: Data Analysis of Physical Fitness Variables of Football Players

Sr. No.	AGE	Sit and Reach (inches)	Vertical Jump (inches)	50 m Dash (sec)	Shuttle Run (sec)	Cooper 12 min run walk (meters)
1	16	2.5	7.8	10	11.56	2200
2	16	2.5	7.9	8.66	11.58	1800
3	16	2.0	4.8	9.81	11.22	1850
4	17	1.5	6.1	9	11.75	1840
5	18	1.5	7.5	9.5	12.05	1760
6	16	2.0	7.6	8.3	12.4	1600
7	18	1.8	6.8	8.15	11.6	1800
8	18	1.6	6.9	8.4	11.49	1900
9	17	2.4	5.8	8.45	12.2	1780
10	16	3.0	7.2	9.1	12.24	2050
11	16	2.0	8.1	9.02	11.88	1890
12	16	3.5	7.9	9.12	11.9	1790
13	18	2.5	6.2	8.83	12.4	1990
14	16	1.5	6.5	9.12	12.45	2250
15	17	2.5	7.1	9.1	12.5	2040

Table 2: Data Analysis of Physical Fitness Variables of Basketball Players

Sr. No	Age	Sit and Reach (inches)	Vertical Jump (inches)	50 m Dash (sec)	Shuttle Run (sec)	Cooper 12 min run walk (meters)
1.	16	2.6	8.9	9.4	11.1	2300
2.	16	2.7	8.5	8.15	11.15	2000
3.	16	2.2	5.4	8.81	11	1900
4.	17	1.8	6.8	8.4	11.19	1920
5.	18	1.9	8.8	8.2	11.29	1790
6.	16	2.5	8.9	8	12	1700
7.	18	2.2	7.6	7.15	11.05	1900
8.	18	2	8.1	7.4	11.4	2050
9.	17	2.8	6.9	8.2	12.05	1830
10.	16	3.2	8.5	8.4	11.55	2090
11.	16	2.6	9.2	8.2	11.2	1950
12.	16	3.8	8.4	8.5	11	1820
13.	18	2.8	8.5	8.1	11.5	2100
14.	16	1.9	7.2	8.4	12.05	2300
15.	17	1.9	8.3	8.5	12.1	2200

Table -3 presented the mean values (± SD) for sit and reach, vertical jump, 50 m dash, shuttle run, and cooper 12-minute run/walk for female football and basketball players. The mean values (± SD) for football and basketball players in the Sit and Reach were 2.28±0.63 and 2.57±0.61, respectively; for vertical jump, the values were 7.01±0.73 and 8.16±0.73; for the 50 m dash, they were 8.75±0.39 and 8.08±0.46; for shuttle run, 12.106±0.37 and 11.59±0.43; and for the cooper 12-minute run/walk test, the values were 1909±182.11 and 1994±186.80.

In comparing fitness levels between the two groups, statistical analysis indicated significant differences for certain variables, with computed 't' values of (0.203) for sit and reach and (0.190) for the cooper 12-minute run/walk test, while no significant differences were observed for vertical jump (0.006), 50 m dash (0.000), and shuttle run (0.002) among female football and basketball players. Based on the analyzed data, we can conclude that both groups exhibit nearly identical physical fitness abilities in three of the tests, but differences were identified in shuttle run and vertical jump performance between the two groups.

Table 3: Comparison of Football and Basketball players on the basis of Physical Fitness Variables

Variables	Mean ±SD Football	Mean ±SD Basketball	t-value
Sit and Reach	2.28±0.63	2.57±0.61	0.203*
Vertical Jump	7.01±0.73	8.16±0.73	0.006
50 m Dash	8.75±0.39	8.08±0.46	0.000
Shuttle Run	12.106±0.37	11.59±0.43	0.002
Cooper 12 min run walk	1909±182.11	1994±186.80	0.190*

The graphical representations of both the groups have been shown in figure 1 to 2 respectively.

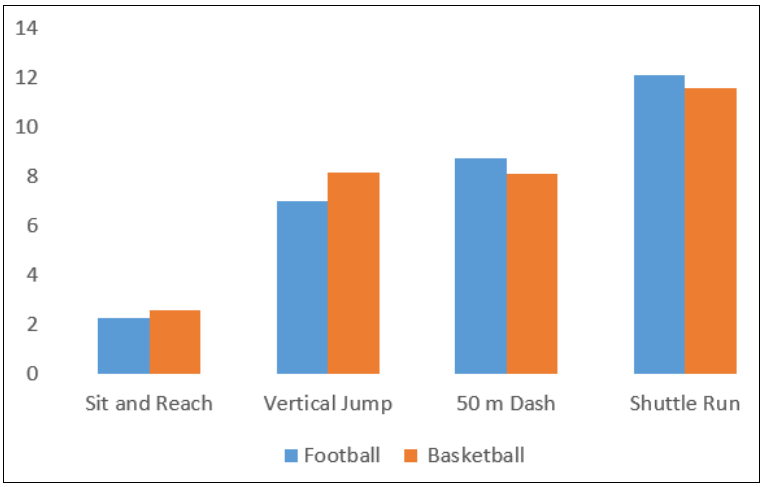

Fig 1: Comparison of Physical Fitness Parameters between Football and Basketball Players

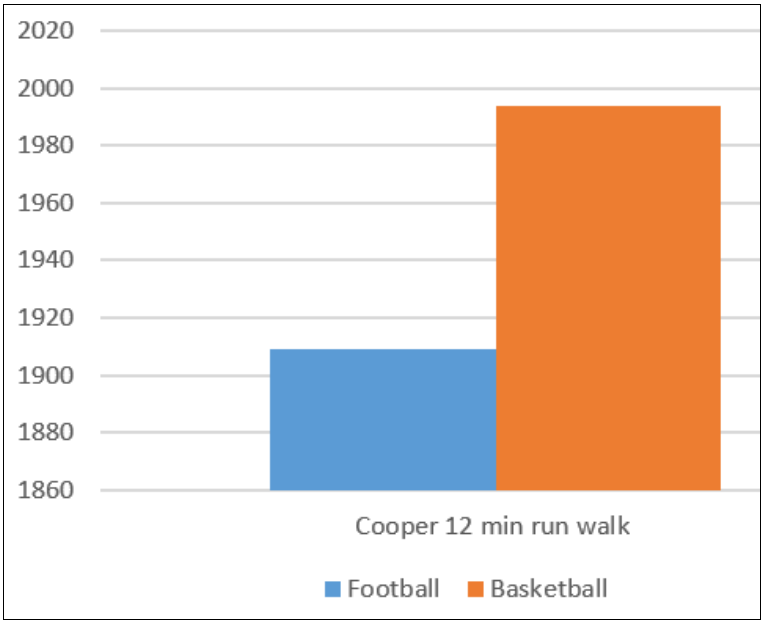

Fig 2: Comparison of Physical Fitness Test Scores between Football and Basketball Players

Conclusion

Based on the analysis above, it was found that there were no noteworthy differences in fitness variables, such as vertical jump, 50 m dash, and shuttle run, between female football and basketball players. However, a significant difference was observed in two fitness variables, specifically the sit and reach and the Cooper 12-minute run-walk test conducted by these athletes.

References

1. Chu DA. Jumping Into Plyometric. 2nd ed. Champaign, IL: Human Kinetics; 1998.
2. Clarke HH. Application of measurement to Physical Education. Champaign, IL: Human Kinetics; 1987. p. 370.
3. Dutt S. A Study of Health Related Physical and Motor Fitness in Boys aged 8-18 years. Champaign, IL: Human Kinetics; 2002. p. 23-30.
4. Falk B, Tenenbaum G. The Effectiveness of Resistance Training in Children. A Meta- Analysis. Sports Medicine Journal. 1996;22:176-86.
5. Fleck SJ, Kraemer WJ. Designing Resistance Training Programme. 3rd ed. Champaign, IL: Human Kinetics; 2004.
6. Lynn BP, James EG, Michael LP, James MH, William C. Effect of Aerobic & Resistance Training on Fractionated Reaction Time & Speed of Movement. Oxford Journals, Life Sciences & Medicine, Journal of Gerontology. 1989;45:26-31.
7. Martens R. Successful Coaching. 3rd ed. Champaign: Human Kinetics; 2004.
8. Suresh NB, Prakash SM. Comparison of physical fitness variables of 18-25 years old Volley ball players belonging to different districts of University of Mysore. Journal of Arts and Culture. 2011;2(2):34-6.
9. Uppal AK. Physical Fitness and Wellness. Friends Publications (India); 2004. p. 134.
10. Vishaw G, Singh A, Singh S. Comparison of physical fitness variables between individual games and team games athletes. Indian Journal of Science and Technolog. 2011;4(5):547-9.