

Comparison of Specific Motor Fitness Elements Between Basketball and Handball Players.

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I. INTRODUCTION

Handball and basketball are high-intensity court games that require frequent sprinting, rapid changes of direction, and sustained running. Agility, linear sprint speed, and aerobic endurance are therefore key motor fitness components influencing skill execution, defence, and transition play in both sports. Because the playing area, movement patterns, and game tempo differ between handball and basketball, players may develop different fitness profiles that coaches need to understand for sport-specific conditioning.

Since from the evolution of man "physical fitness" is playing a very crucial role in the all-round development of man and mankind. Irrespective of the time be it ancient times, medieval times, or modern times, physical fitness is a very crucial and important component of human life. The importance of physical fitness was well known to our ancestors. IN 360 B.C. Plato amply described the importance of physical fitness in the following words "Lack of activity destroys the good condition of every human being while movement and methodical physical exercise save it and preserve it".

needs of primitive man were quite simple and Basic but not of very complex nature. He was supposed to have a certain amount of physical fitness to indulge in some activities like hunting animals, and fish, and fighting the animal was essential for his survival. The learning of such important skills was his basic and first education and development of conditioning of body through virgous physical activity. This process of strengthening body and skills continued through but the centuries serving as a vital skill for the effective living of men. Though it is a matter of fact that primitive man recognised the physical fitness as

necessary to his survival. But it does not mean that the importance of physical fitness has been diminished to the modern man. The modern man cannot afford to complacent and forget its importance as it not only maintains his efficiency and happiness but also it is the way of his survival in a highly competitive environment. The right kind and right amount of physical exercise develop organic and muscle power, stamina, vigour, and the activity skills related to his development. There is a direct relationship between physical exercise and physical fitness.

physical fitness is the ability to carry our daily tasks with vigour and alertness without undue fatigue and with ample energy to engage in leisure time pursuits and to meet the above average physical strength, stress, muscular endurance and circulatory endurance, muscular power, agility speed, and flexibility and added to compose motor fitness. Then, kinetic, arm-eye, foot eye, co-ordination is needed for general motor ability.

Statement of the problem:

The study Aims to find out the Comparison of Agility, Speed, and Endurance Between State Level Handball and Basketball Players.

Significance of the study:

1. To assess agility, sprint speed, and endurance of state handball players.
2. To assess agility, sprint speed, and endurance of state basketball players.
3. To compare handball and basketball players on agility, sprint speed, and endurance.
4. To interpret the practical significance of any differences for sport-specific training.

Delimitations:

- This study Was delimited to only Senior men’s team of State level.
- The study was delimited to 14 players of Each Team.
- The Age of Players Delimited to 25to 28 years.

Hypotheses.

- H₁ (Agility): There will be a significant difference in agility between handball and basketball players.
- H₂ (Speed): There will be a significant difference in sprint speed between handball and basketball players.
- H₃ (Endurance): There will be a significant difference in endurance between handball and basketball players.

(Each hypothesis is tested at the 0.05 level using independent samples t-tests.)

II. METHODOLOGY

Subjects

The study included 28 male state level athletes

- Handball group: 14 players.
- Basketball group: 14 players.

All subjects trained regularly and represented their state in competitions, and were free from major injury at the time of testing.

Variables and tests

- Agility (seconds): Change-of-direction run (shuttle-Run).
- Speed (seconds): Straight-line sprint over a fixed distance (50 metres Dash)
- Endurance (meters): Continuous running test. (Cooper 12-minute run and walk)

Procedure

Testing was conducted on the ground. Players performed a 10–15-minute warm-up of jogging and dynamic stretching, then completed:

- One recorded trial for agility.
- One recorded trial for sprint speed.
- One full endurance trial.

Standard instructions and timing procedures were used for both groups.

III. DATA ANALYSIS AND INTERPRETATION

The statistical analysis of data related to performance on motor fitness variables, and playing ability. The data collected on Handball and Hockey players. To analysis the data the Researcher use Descriptive Statistics, and Inferential statistical Technique to understanding the fact.

Table.01 Descriptive statistics of Basketball and handball players.

Subject	Variable	n	Mean	Median	SD	Min	Max	Range	SE
Handball	Agility	14	20.53	20.21	1.28	18.2	23.39	5.19	0.34
	Speed	14	7.25	7.08	0.69	6.28	9	2.72	0.18
	Endurance	14	2508.21	2545	239.4	2100	2900	800	63.98
Basketball	Agility	14	10.34	10.08	0.47	10.02	11.1	1.08	0.12
	Speed	14	7.58	7.73	0.83	6.07	9.02	2.95	0.22
	Endurance	14	2791.43	2827.5	274.66	2280	3190	910	73.41

Basketball athletes demonstrated superior agility (mean = 10.34 s, SD = 0.47) and endurance (mean = 2791.43 s, SD = 274.66) compared to handball players (agility mean = 20.53 s, SD = 1.28; endurance mean = 2508.21 s, SD = 239.4), with a mean difference of 10.19 s in agility and 283.22 s in endurance. Speed was comparable (handball 7.25 s vs. basketball 7.58 s).

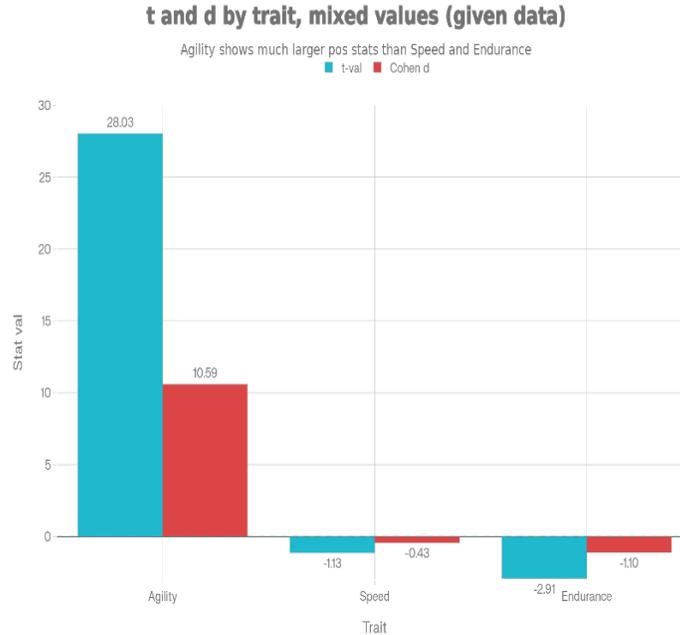
Table -2: Independent t-test results

variable	t-value	p-value	Cohen’sd
Agility	28.03	<0.001	10.59
speed	-1.13	0.27	-0.43
endurance	-2.91	0.007	-1.1

Interpretation:

- Compared to handball players, basketball players are significantly more agile and have greater endurance statistically significant at the 0.05 level.
- Handball players are slightly faster in straight-line speed, but the difference is not statistically significant at 0.05 level.

Graphical representation of findings.



IV. DISCUSSION ON FINDINGS

While the data contradict H₂ with relation to sprint speed, they corroborate H₁ and H₃, showing significant differences in endurance and agility between the two sports. Basketball players' remarkable agility and endurance are likely caused by the game's frequent cutting, up-and-down movement, and prolonged effective playing time, all of which significantly boost aerobic capacity and change-of-direction ability.

The non-significant difference in sprint speed indicates that at this level, both sports demand comparable straight-line running speed; handball's slight edge may be due to frequent short, explosive runs for defensive transitions and rapid breaks. These findings highlight the necessity of focused conditioning rather than general training and are consistent with earlier sports science research demonstrating sport-specific variations in agility and endurance.

V. CONCLUSION

The results of this study, which analysed certain motor fitness components in state basketball and handball players, showed that while sprint speed is generally similar between groups, basketball players have noticeably higher endurance and agility. The need of frequent fitness testing and customized conditioning programs in state sports is highlighted by these sport-specific variations. When creating training to fulfil the demands, coaches and physical education experts can use the current data as reference values and a guide.

VI. RECOMMENDATIONS

- Handball coaches should prioritise agility drills, multi-directional movement training, and aerobic conditioning to reduce the gap in agility and endurance.
- Basketball coaches may maintain strong agility and endurance work while adding more maximal

sprint training to further enhance straight-line speed.

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