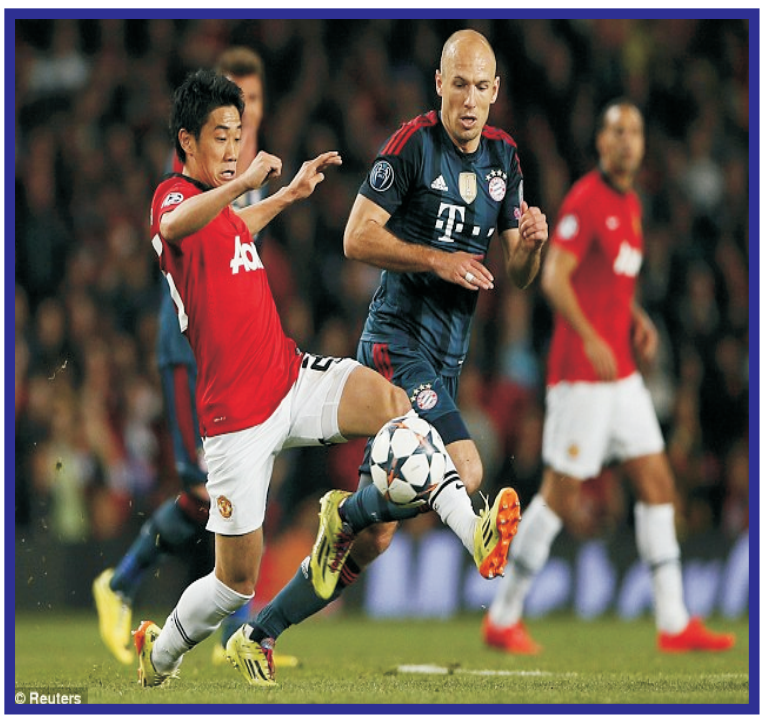
STUDY OF SELECTED PHYSICAL FITNESS COMPONENTS OF INTER-COLLEGE LEVEL FOOTBALL AND HANDBALL PLAYERS

Abstract:-

The purpose of the study was to compare the physical fitness components between male football and handball players. The present study was conducted on a sample of seventy two (N=72), which includes thirty six each, male football (N1=36, mean ± SD: age 21.28 ± 1.45 years, height 177.22 ± 5.43 cm, weight 68.83 ± 6.53 kg, BMI 21.93 ± 1.96) and handball (N2=36, mean ± SD: age 21.08 ± 1.44 years, height 177.61 ± 5.38 cm, weight 72.67 ± 6.73 kg, BMI 23.05 ± 2.12) players who participated in inter- college competitions of Guru Nanak Dev University, Amritsar, India. All the participants were informed about the aim and methodology of the study and they volunteered to participate in this study.



All the participants were assessed for height, weight and selected physical fitness components. The height of the subjects was measured with anthropometric rod to the nearest 0.5 cm. The weight of subjects was measured by using portable weighing machine to the nearest 0.5 kg. The vertical jump test (Fleishman, 1964) was used to measure explosive power of the legs whereas 50 meters dash test (Johnson and Nelson, 1982) was used to determine speed. Shuttle run test (Johnson and Nelson, 1982) was used to measure agility where as sit and reach test (Mathews, 1973) was used to determine the flexibility. The independent samples t-test was applied to assess the differences between football and handball players. Significant differences had been observed between inter-college level male football and handball players with regard to power ($p<0.05$), speed ($p<0.05$) and agility ($p<0.05$) whereas insignificant differences were observed on flexibility ($p>0.05$). The results of present study indicated that football players had significantly greater speed and agility as compared to handball players whereas handball players had significantly better power than football players.

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Keywords:

Physical fitness, football, handball, power, speed, agility, flexibility.

INTRODUCTION

Sport is a complex of all cyclic & acyclic movements & sports performance is a multidimensional phenomena. Sports performance is also a complex of numerous factors such a physiological, physical, psychological sociological, variety mixture of all inborn qualities and so on. Physical factor especially fitness characteristics of an athlete are the pre-requisites of performance factors. Fitness enables a player to cope with the physical demands of the game as well as allowing the efficient use of his various Technical and tactical competencies throughout the match (Brandon & Leigh, 2009). Physical fitness is, in a very broad sense, determined by the individual's capacity for optional work and motor and sport performance (Astrand & Rodahl, 1986). Football and handball players require well-developed power, speed and agility. Such physical fitness components are important for both football and handball players to achieve higher levels of performance. Functionally, each game of football is made up of distinct phases incorporating sprinting (accelerating and decelerating), dribbling, and walking, jogging, change in direction, tackling, pushing, heading and kicking (Inklaar, 1994; Lees & Nolan, 1998). Football players are required to such a high level of speed, power, muscular strength and agility (Arnason et al., 2004; Bangsbo et al., 1991). Speed is very important physical fitness component because the running with high intensity and speed activities is determining factors of the performance of the football players (Bradley et al., 2009; Di salvo et al., 2009). High level of agility would be the distinctive feature of the football players, since playing football requires quick directional changes (Reilly & Thomas, 1980). Handball is a dynamic game. Team handball is a complex intermittent game, which requires players to have well developed aerobic and anaerobic capacities(Delamarce et al.,1987). Successful performance requires explosive power of the legs and arms, sprint velocity and kinesthetic feeling in ball control (Sibila, 1997). Thus, the purpose of this study was to compare the physical fitness components between football and handball players.

MATERIALS AND METHODS

Subjects:

A sample of seventy two (N=72), which includes thirty six each, male football (N_1=36, mean ± SD: age 21.28 ± 1.45 years, height 177.22 ± 5.43 m, weight 68.83 ± 6.53 kg, BMI 21.93 ± 1.96) and handball (N_2=36, mean ± SD: age 21.08 ± 1.44 years, height 177.61 ± 5.38 cm, weight 72.67 ± 6.73 kg, BMI 23.05 ± 2.12) players who participated in inter-college competitions of Guru Nanak Dev University, Amritsar, India, was selected for the study. All the participants were informed about the aim and methodology of the study and they volunteered to participate in this study. The purposive sampling method was used to select the subjects for the present study.

Methodology:

The height of subjects was measured by using the standard anthropometric rod to the nearest 0.5 cm. Weight was measured with portable weighing machine to the nearest 0.5 kg. BMI was calculated by the formula of; Body Mass Index = Weight/Height^2. The vertical jump test (Fleishman, 1964) was used to measure explosive power of the legs whereas 50 meters dash test (Johnson and Nelson, 1982) was used to determine speed. Shuttle run test (Johnson and Nelson, 1982) was used to measure agility where as sit and reach test (Mathews, 1973) was used to determine the flexibility.

Statistical analyses:

Values are presented as mean values and SD. Independent samples t tests were used to test if population means estimated by two independent samples differed significantly. Data was analyzed using SPSS Version 16.0 (Statistical Package for the Social Sciences, version 16.0, SPSS Inc, Chicago, IL, USA). The level of significance was set at 0.05.

RESULTS

Table: 1. Demographic Characteristics of male Football and Handball Players.

Sports Group	Age (yrs)		Height (m)		Weight (Kg)		BMI	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Football Players	21.28	1.45	177.22	5.43	68.83	6.53	21.93	1.96
Handball Players	21.08	1.44	177.61	5.38	72.67	6.73	23.05	2.12

Table-1: shown the demographic characteristics of male football and handball players. The mean age of football players was 21.28 years and handball players were 21.08 years. The mean height of football players was 177.22cm and handball players were 177.61cm. The mean weight of football players was 68.83 kg and handball players were 72.67 kg. The mean BMI value of football players was 21.93 and handball players were 23.05 respectively.

Table-2. Physical Fitness Components of male Football and Handball Players.

VARIABLES	Football Players (N_1 = 36)		Handball Players (N_2 = 36)		Mean Difference	SEDM	t-value	Sig.
	Mean	*SD*	*Mean*	*SD*				
Power	42.67	4.28	57.33	7.42	14.66	1.43	**10.27***	0.00
Speed	6.69	0.40	7.01	0.30	0.32	0.08	**3.84***	0.00
Agility	16.94	0.90	18.32	1.48	1.38	0.29	**4.81***	0.00
Flexibility	7.92	0.67	7.95	0.70	0.03	0.16	**0.18**	0.86

*Significant at 0.05 level t.05 (48) =1.671

Table 2 depicts that the significant differences have been found between inter-college level male football and handball players with regard to power ($p<0.05$), speed ($p<0.05$) and agility ($p<0.05$) whereas insignificant differences have been observed on flexibility ($p>0.05$). The results of present study indicated that football players had significantly greater speed and agility as compared to handball players whereas handball players had significantly better power than football players.

DISCUSSION AND CONCLUSION

In the present study physical fitness components of the inter-college level football and handball players have been evaluated and compared with each other. This study indicates the existence of physical fitness variables differences among the football players and handball players. The demographic characteristics of football and handball Players show that handball players were taller and heavier as compared to the football players. The results of present study indicated that football players had significantly greater speed than handball players. Fitness characteristics that have been reported as essential for football players are agility, speed and explosive jumping power (Polman et al., 2004). In the present study, football players had shown better agility than handball players. According to Reilly & Thomas(1980) high level of agility would be the distinctive feature of the football players, since playing football requires quick directional changes. Agility is an essential attribute of football player. In football, the ability to accelerate, decelerate and rapid movements in all directions is more important than simply running fast (Reilly & Thomas, 1980). During a football match a player frequently performs activities that require rapid development of force, such as sprinting or quickly changing direction (Bangsbo, 1996). On the other hand, handball players had significantly better power than football players. Sibila (1997) suggested that the successful performance in handball requires explosive power of the legs. Players are required to have good explosive power that will enable successful performance at the competitive level. While concluding, it is revealed that handball players were taller and heavier as compared to the football players. The results of present study indicated that football players had significantly greater speed and agility as compared to handball players whereas handball players had significantly better power than football players whereas no differences were observed on flexibility between football and hand ball players.

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