



# Study of Body Composition, Flexibility and Muscular Endurance between Football & Handball

**\*\*Mr Shashi Kant**

Assistant professor GHG.Khalsa College Gurusar Sadhar Ldh. India.

## Abstract

*In the present modernized society the importance of sport is well understood and given a very high response. Body composition can be measured in several ways, through caliper to measure the thickness of subcutaneous fat multiple place on the body. These measurements are then used to estimate total body fat with a margin of error of approximately four % points. Flexibility is the range of motion around a joint, high flexibility helps in lowering the injuries in all stages of life. Muscular endurance is the ability of the muscles to continue to perform with out fatigue. The to continue to perform with out fatigue. The purpose of this present study was to compare the body composition (percentage of body fat), flexibility (hip & trunk flexibility), and muscular Endurance (sit-ups test) between college level Football &Handball Players.*

## Method:

*Sixty(60) males participated at colleges level, Football Players (N=30) and Handball Players (N=30) ranging between 18 to 22 years were selected randomly from GHG. Khalsa College Gurusar Sadhar Ldh. Punjab India for this study. To compare the mean differences between the college level Football &Handball Players, 't'-test was employed.*

**Result and Discussion:** *Body composition (percentage of body fat), Flexibility (hip & trunk) and muscular endurance (sit-ups test were found to be statistically significant. The mean and S.D between the Football & Handball Players for body composition are (11.40,1.92) and (14.43,2.82) respectively. Regard to flexibility the Mean and S.D. between the Football & Handball Players are (23.32,5.48) and (17.10, 1.86) respectively Mean and S.D. between the Football =Handball Players regard to muscular endurance are (26.47, 4.87) and (17.23,2.71) respectively.*

**Conclusion :** *it is concluded that there is a significant difference in body composition of Football &Handball Players. The trunk & hip flexibility of Football &Handball Players differ significantly. Furthermore lastly regard to muscular endurance difference.*

**Key words :** body Fat, Flexibility, Muscular endurance, Body composition.

## Introduction

In the present modernized society the importance of sports is well understood and given a very high response. Research in sports sciences played an immense popularity due to Asian, world and Olympic Game, these apart it has become a worldwide phenomenon. The physique or body composition, including the size, shape of the muscle, plays an important role in the sports. Body composition makes an important contribution to an individual's level if

physical fitness performance, particularly in activities that required on to carry, one's body weight over distance, will be facilitated by large proportion of active tissue muscles in relation to a small proportion of inactive tissue 'fat' Body composition can be measured in several ways, through caliper to measure the thickness of subcutaneous fat in multiple places on the body. These measurements are then used to estimate total body fat with a margin of error of

approximately four % points. Flexibility is the ability if an individual to move the body and its parts through as wide a range of motion as possible without undue strain to the articulations and muscle attachments. A high level of flexibility helps in saving energy during vigorous movement because of the full range of moment of the joint and muscles, the individual may be less prone to injury. Flexibility for sports is more than the maximal lengthening of soft tissues and it is not a posed, static position. Flexibility is the range of motion around a joint, high flexibility helps in lowering the injuries in all stages of life. It is a very important component of sports performance that can be significantly improved if approached correctly. Muscular endurance is also plays an important role in performance of individuals in various sports and games. Muscular endurance is an important fitness component and helps individuals in performing high performance. Muscular endurance is the ability of the muscles to continue to perform without fatigue.

**Method:** In this study, a sample of 60 male participants (30 Football and 30 Handball Players ) who had participated at college level competition at GHG. Khalsa College Gurusar Sadhar Ldh. Punjab, were randomly selected as subjects. The age was ranged from 18-22 years. To compare the mean difference between the Football & Handball players with regard to body composition (%of body fat) were considered, and for hip & trunk flexibility (sit and Reach Test) was employed, and regard to muscular endurance (Sit-ups test for 30 sec) was considered. Body composition was assessed by taking the skin fold Caliper was used to assess percentage body fat. The Sit and Reach Test used to measure flexibility. Sit-ups test was employed to measure flexibility. Sit-ups test was employed to measure muscular endurance of the participants. ‘t’-test was employed The level of significance was at 0.05.

**Result: The below table 1 to 3 shows the analysis of data.**

**Tabl-1**

No	Flexibility	No of Subjects	Mean	SD	‘t’ Value
1.	Football	30	11.4	1.92	10.33
2.	Handball	30	14.43	2.28	

**‘t’-test for dependent samples marked difference are significant at p<0.05**

Body composition Results: The mean S.D. and t-test of the body composition between Football & Handball Players. Mean and S.D. between the Football & Handball player are (11.4, 1.92) and (14.43, 2.82) respectively. The data clearly show that the Football Players are having less fat percent than the Handball Players, which is significant at (p<0.05)

**Table-2**

N	Flexibility	No of Subjects	Mean	SD	‘t’ Value
1.	Football	30	23.32	5.48	8.58
2.	Handball	30	17.1	1.86	

**‘t’-test for dependent samples marked difference are significant at p<0.05**

**Flexibility (hip & trunk) Results:** The mean, S.D. and t-test of the flexibility between Football & Handball Players. Mean and S.D. between the Football & Handball Players are (23.52, 5.48) and (17.10, 1.86)

respectively. The data clearly shows that the Football Players are having greater flexibility than the Handball Players. Which significant at ( $p < 0.05$ )

**Table-3**

N	Muscular Endurance	No of Subjects	Mean	SD	't' Value
1.	Football	30	26.47	4.87	12.09
2.	Handball	30	17.23	2.71	

**'t'-test for dependent samples marked difference are significant at  $p < 0.05$**

**Muscular Endurance Result:** The mean, S.D. and t- test of the muscular endurance between Football & Handball Players. Mean and S.D. between the Football & Handball Players are (26.47, 4.87) and (17.23, 2.71) respectively. The data clearly shows that the Football players are par excellent in muscular endurance (sit -ups test for 30 second) compare to the Handball Players which are significant at ( $p < 0.05$ ).

**Discussion :**

It is clear from the result of the study. The above tables showed that there was a significant difference in body composition between the Football & Handball Players. Regard to the flexibility (hip & trunk flexibility) between Football & Handball Players the data speak greater performance from the body builders. In case of flexibility which is an important for the Football & Handball Players respectively. Football Players need lot of strength, muscular endurance, and cardio-vascular endurance apart from flexibility, to compete against opponents on stage by displaying their muscles to the judges for the comparison. Handball Players also need lot of power, strength, speed, muscular endurance apart from flexibility to compete

against their opponents. When exercising snatch & Jerk and clean & press the weight lifters need lot of skills, flexibility, power, speed, muscular endurance to perform well. From the analysis, it revealed that there is significant difference on body composition (percentage of body fat) between Football & Handball Players. Lastly both the groups regard to muscular endurance (sit-ups for 30 sec) differ significantly. The Football Players had shown greater performance compare to their counter parts Handball Players. Football regularly includes sit-ups exercises in their schedule, this is one of the reason that they had perform well in sit-ups test. Abdominals are the essence of Football game, that's the reason all the Football Players gives lot of importance for abdominals. For weight lifters abdominals are not merely necessary as Football Players.

**Conclusion :**

It is concluded that there is a significant difference in body composition of Football & Handball Players. The trunk & hip flexibility of Football & Handball Players differ significantly. Furthermore regard to muscular endurance between both the groups showed significant difference, interestingly in overall comparison in all variables Football Players had shown par excellent performance.

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