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## A comparative study of anthropometric measurements, body composition and cardiovascular efficiency of kho-kho and kabaddi players

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### Abstract

The purpose of the study is to compare the anthropometric measurements, body composition and cardiovascular efficiency of kho-kho and kabaddi players. The main sources of data for the present study are the physical education students of Guru Ghasidas University Bilaspur for the age group of subjects was 20 to 26 years. Total sample was 40 (20 each group). The level of significance was set up at 0.05. In Anthropometric measurements, (standing height) no significant differences was found, in body composition kho-kho were found superior to kabaddi players and in cardiovascular efficiency, kho-kho were found superior than kabaddi players.

**Keywords:** Body composition, anthropometric measurement, cardiovascular efficiency, kho-kho, kabaddi

### 1. Introduction

Life itself is Physical Education. Presently it is in the process of transformation. Concentrated efforts are now being made to bring physical education into the main stream of education. In the process there are problems and solution, embarrassments and insights, and finally confusion and adjustment.

Body composition (particularly body fat percentage) can be measured in several ways. The most common method is by using gun calipers to measure the thickness of subcutaneous fat in multiple places on the body. This includes the abdominal area, the subscapular region, arms, buttocks and thighs. These measurements are then used to estimate total body fat with a margin of error of approximately four percentage k points. A technique for measuring body composition has been developed using the same principles as under water weighing. The technique uses air, as opposed to water and is known as air displacement plethysmography (ADP). Subjects enter a sealed chamber that measures their body volume through the displacement of air in the chamber. Body volume is combined with body weight (mass) in order to determine body density. The technique then estimates the percentage of body fat and lean body mass (LBM) through known equations (for the density of fat and fat free mass). Body composition measurement with Dual energy X-ray absorptiometry (DEXA) is used increasingly for a variety of clinical and research applications. Total body or estimated total body scans using DEXA give accurate and precise measurements of BMD and body composition, including bone mineral content (BMC), bone mineral density (BMD), lean tissue mass, fat tissue mass, and fractional contribution of fat. These measurements are extremely reproducible, making them excellent for monitoring pharmaceutical therapy, nutritional or exercise intervention, sports training &/or other body composition altering programs. They are also fast, simple, non-invasive, and expose the subject to a level of x-rays less than that of a cross-country flight. DEXA exams provide both total body and up to 14 regional (trunk, individual arms & legs, android, ganoids, etc.) results. (Kiebzak GM 2000) Body Composition is also estimated using cross-sectional imaging methods like magnetic resonance imaging (MRI) and computed tomography (CT). Since MRI and CT give the most precise body composition measures to-date, many pharmaceutical companies are very interested in this new procedure to estimate body composition measures before and after drug therapy especially in

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drugs that might change body composition. Ultrasound has also been used to measure subcutaneous fat thickness, and by using multiple points a measurement of body composition can be made. Ultrasound has the advantage of being able to also directly measure muscle thickness and quantify intramuscular fat.

Anthropometry is the science of measuring the human body and its parts. It is used as an aid to the study of human evolution and variation.

Body composition is the preparation of the lean mass and depot fat and it is one of the most important morphological factors characterizing human organism. (Donald K. Mathews) Cardiovascular Efficiency Cardiovascular efficiency is the ability to continue or persist in strenuous tasks involving large muscle group for a longer period of time.

### 1.1 Statement of problem

The purpose of the study undertaken is to find out the relationship of selected anthropometric measurements, body composition and cardiovascular efficiency of kho-kho and kabaddi Players. Hence the statement of the problem is: "A comparative study of anthropometric measurements, body composition and cardiovascular efficiency of kho-kho and kabaddi players"

### 1.2 Purpose of the study

The purpose of the study is to compare the anthropometric measurements, body composition and cardiovascular efficiency of kho-kho and kabaddi players.

### 1.3 Hypothesis

According to the available literature in this field it was hypothesized that the kho-kho players would find superior to the kabaddi players in every aspect of this study, i.e., Anthropometric measurements, body composition, and cardiovascular efficiency.

## 2. Methodology

### 2.1 Selection of Subjects

Total number of 40 (20 each Group) subjects randomly selected and their age ranged 20-26 years of Guru Ghasidas University Bilaspur.

### 2.2 Criterion measures

The criterion measures for testing the hypothesis in the study will numerical scores obtained from the anthropometric measurement, body composition and Cardio-Vascular efficiency test.

### 2.3 Statistical procedure

For the comparison of kho-kho and kabaddi players in anthropometric measurement, body composition and cardiovascular efficiency, the Students 't' test was employed. 0.05 level of significance.

## 3. Result of the Study

**Table 1:** Summary of the 't' Test of Standing Height

Groups	Kho-Kho	Kabaddi
N	20	20
S.D.	5.32	5.13
Mean	170.50	168.25
't' value	0.91	0.91

**Table 2:** Summary of the 't' test of Body Composition

Groups	Kho-Kho	Kabaddi
N	20	20
S.D.	2.00	2.65
Mean	18.10	20.15
't' value	-2.88	-2.88

**Table 3:** Summary of the 't' test of Cardiovascular Efficiency

Groups	Kho-Kho	Kabaddi
N	20	20
S.D.	3.30	4.40
Mean	81.20	78.55
't' value	3.20	3.20

## 4. Discussion and findings

The present study was under taken with the view to find out the relationship between the selected Anthropometric measurement, body composition and cardiovascular efficiency of kho-kho and kabaddi players. The subjects were 40 in number 20 in each group namely kho-kho and kabaddi. All subjects of University level in the Department of Physical Education, Guru Ghasidas University Bilaspur.

## 5. Conclusion

On the basis of finding, the following conclusions have been drawn

1. In Anthropometric measurements (standing height) the kho-kho players were found superior than kabaddi Players.
2. In body composition kho-kho players were found superior to kabaddi players.
3. In cardiovascular efficiency, kho-kho players were found superior than kabaddi players.

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