



ISSN: 2456-0057  
IJPNPE 2019; 4(1): 786-787  
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www.journalofsports.com  
Received: 20-11-2018  
Accepted: 22-12-2018

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## Analysis of selected kinanthropometric characteristics and motor abilities with playing performance of right wing handball players

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### Abstract

The aim of the study was to predict the kinanthropometric characteristics and motor abilities of handball players with their playing performance in relation to their playing position. For this purpose right wingers playing positions of handball team were assessed. Male handball players were selected as subjects for the study. A total forty (N=40) male handball players were selected as subjects. All players were participated in All India Inter University Handball (Men) Championship or Senior (Men) National Handball Championship only. After collecting the relevant data Pearson's Product Moment correlation was applied. The level of significance was set at 0.05. The outcome of the study shows that significant relationship of all the kinanthropometric characteristics and motor abilities of handball players with their playing performance in relation to their playing position

**Keywords:** Kinanthropometry, skinfold, motor abilities, speed and explosive leg

### Introduction

The world of sports has a special place in the human society. It is an exciting source for enjoyment and recreation for people from different part of the society. Sports were introduced for peace, day by day sports changes its nature. From the enjoyment and recreation for the people it converts into competitive in nature. Sports are the competitive physical activity. To compete starting from the days when muscle strength was a major source of motive power, the physical and mental ability have been challenged in the sports arena. History tells us that in some cases, these challenges ultimately led to competitions among men and sometimes between men and animals. Winners in the sports field have always been bestowed with the best honors in the society. Hero worship in fact started in the field of games and sports.

Inventing new games and sport forms has been one of the most creative activities in the human history. Through various games and sports, the strength and enduring power of each muscle, sub-system and physiological faculty in the human body has been put on test. The world of sports has given the human kind an even playing ground for comparing each physical parameters of the human body with the best.

Handball is supposedly one of the Olympic disciplines like, basketball, Hockey, Volleyball, Football etc. It is an indoor game. It is a very fast game of the duration of 70 min each with two halves. In handball seven players are playing at a time. All the players plays equal role to achieve the good performance including goal keeper. In this game the movements of the players are very fast, tactful and strength full. In this game movement speed of the players, explosive strength of the players and players should be agile plays a good role. The players have to perform a number of zigzag movements and straight runs with high speed in accordance with the requirement of the game. Handball like basketball involves positional play where the role of players is very specific (Wikipedia). The speed of the ball requires the player to be alert, quick, and agile and having well developed co-ordination, neuromuscular control and postural refers. The surface of the court calls for speed, stamina and strength. A very level of physical fitness all play an important part in providing distinct advantage for specific playing positions particularly at the highest level of performance where there is a high degree of player specialization. (Chaouachi, 2009) [3].

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### Procedure and methodology

The purpose of this study was to predict the kinanthropometric characteristics and motor abilities of handball players with their playing performance in relation to their playing position. For this purpose right wingers playing positions of handball team were assessed. Male handball players were selected as subjects for the study. A total forty (N=40) male handball players were selected as subjects. All players were participated in All India Inter University Handball (Men) Championship or Senior (Men) National Handball Championship only.

### Statistical Analysis

In order to find out the relationship among the Kinanthropometric characteristics and motor abilities of handball players with their playing performance, the Pearson's Product Moment correlation Technique was employed. The level of significance to test the hypothesis was set at 0.05 level.

### Results

**Table 2:** Correlation Analysis of Kinanthropometric Characteristics and Motor Abilities with Playing Performance of Right Wing Handball Players

Variables	Pearson Correlation Coefficient (r)	Sig
Height	.366*	.010
Weight	.387*	.007
Biceps Skinfold	.311*	.026
Triceps Skinfold	.342*	.015
Sub-scapula Skinfold	.325*	.020
Supra spinal Skinfold	.397*	.006
Calf Skinfold	.288	.036
Wrist Width	.391*	.006
Elbow width	.371*	.009
Knee width	.416*	.004
Arm Girth	.433*	.003
Calf girth	.386*	.007
Arm Length	.333*	.018
Leg Length	.379*	.008
Hand Grip	.842*	.000
Back Strength	.864*	.000
Speed	-.786*	.000
Agility	-.702*	.000
Explosive Strength	.370*	.009

$r_{0.05(38)}=.304$  \*Significant at 0.05 level

Table 4.1 depicts the correlation coefficients (r) of the kinanthropometric characteristics and motor abilities with playing performance of right wing handball players. The result of the study showed that there was a significant and positive association of height ( $r=.366$ ,  $p=.010$ ) and weight ( $P=.387$ ,  $P=.007$ ) with the playing performance of right wing handball players. There was a significant and positive association of the playing performance of right wing handball players with biceps skinfold ( $r=.311$ ,  $p=.026$ ), triceps skinfold ( $r=.342$ ,  $p=.015$ ), sub-scapula skinfold ( $r=.325$ ,  $p=.020$ ) and supra-spinal skinfold ( $r=.397$ ,  $p=.006$ ) but insignificant association with calf skinfold ( $r=.288$ ,  $p=.036$ ). Further the results reveal that there was positive and significant relationship of the playing performance of right wing handball players with wrist width ( $r=.391$ ,  $p=.006$ ), elbow width ( $r=.371$ ,  $p=.009$ ) and knee width ( $r=.416$ ,  $p=.003$ ). Positive and significant association of the playing performance of right wing handball players with arm girth ( $r=.433$ ,  $p=.003$ ), calf girth ( $r=.386$ ,  $p=.007$ ), arm length ( $r=.333$ ,  $p=.018$ ) and leg

length ( $r=.379$ ,  $p=.008$ ), in relation to motor abilities, hand grip ( $r=.842$ ,  $p=.000$ ), back strength ( $r=.864$ ,  $p=.000$ ), and explosive strength ( $r=.370$ ,  $p=.009$ ) had significant positive association but speed ( $r=-.786$ ,  $p=.000$ ), agility ( $r=-.702$ ,  $p=.000$ ) had significant and inverse association with the playing performance of right wing handball players.

### Conclusions

On the basis of above findings of present study, the following conclusions have been drawn.

It is concluded that kinanthropometry characteristics i.e. height, weight, biceps skin fold, triceps skin fold, sub-scapular skin fold, supra spinal skin fold, calf skin fold, elbow width, knee width, wrist width, arm girth, calf girth, arm length and leg length showed significant relationship with playing performance of right wing handball players. The finding of this study sported by Chaouachi, *et al.* (2009) [3] and Chauhan, *et al.* (2009) [4].

It is concluded that motor abilities i.e. speed; agility, hand grip, back strength and explosive strength of different playing positions of hand ball players have a significant relationship with their playing performance.

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