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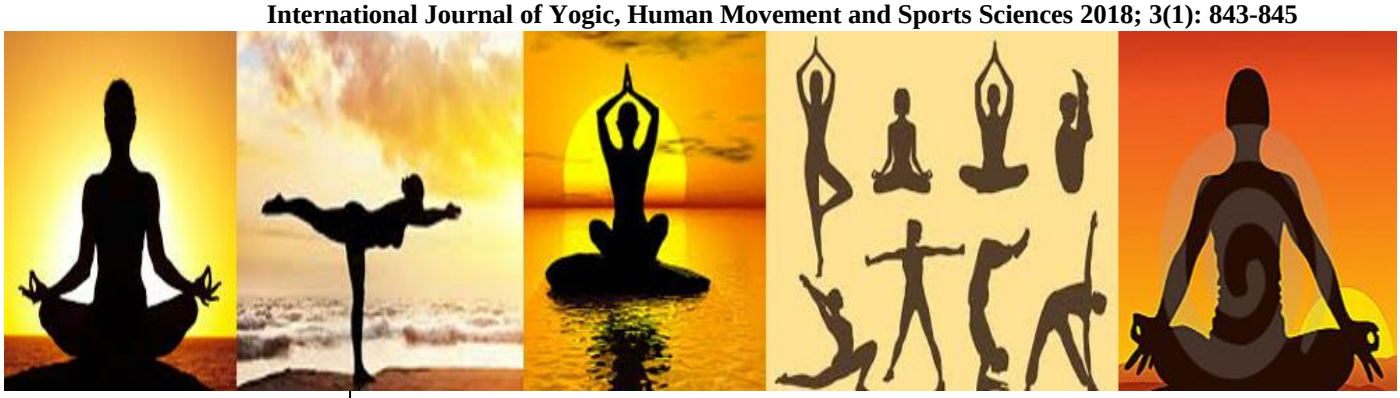

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Dr. M Ramajayam
Assistant Professor,
Ramakrishna Mission Vidyalaya Maruthi College of Physical Education, Coimbatore,
Tamil Nadu, India

Correspondence
Dr. M Ramajayam
Assistant Professor,
Ramakrishna Mission Vidyalaya Maruthi College of Physical Education, Coimbatore,
Tamil Nadu, India

Comparison of dominant hand grip strength among inter collegiate men ball badminton players

Dr. M Ramajayam

Abstract
To achieve the purpose of the present study forty subjects were selected various physical education colleges from Tamil Nadu from Selvam college of physical education (SELVAM), YMCA college of physical education(YMCA), Tamil Nadu Physical Education Sports University (TNPESU), Dhanalaxmi college of physical education and St.John's college of physical education, Tamil Nadu. Ball badminton Inter collegiate tournaments held at Dhanalaxmi College of physical education, Perambalur during October- 2017. Each college eight players were selected. Their age ranged from 21 to 25 years. The criterion variable dominant hand grip (right hand) strength was selected. The selected criterion variable grip strength was tested using the hand grip dynamometer. The data were collected and treated with ANOVA. If obtained 'F' ratio was significant scheffe's post hoc test was used to find out the paired mean difference. The level of confidence was fixed at 0.05. The results shows that there is significant difference among the inter collegiate men ball badminton players of hand grip strength. St.Johns college of physical education players higher grip strength compared with other physical education college players.

Keywords: Hand Grip Strength, Anova, Scheffe's Post Hoc test

Introduction
Ball badminton players have very good agility movement that enhances the playing performance. Players have holding the racket grip strength is essential quality. Sporting success depend on conditional and coordinative ability such as strength, speed, endurance, mobility and skills, technical- tactic ability, personal abilities, physical characteristics and health factors (Ozbar 2002) [6]. In sports, strength is known to increase sporting success and performance. Especially, hand grip strength (grasping strength) the most important determinant. Hand grip strength is a physical trait that plays an important role providing effectiveness and efficiency during daily work and sports activities. Moreover, in terms of performance, hand grip is an important indicator in many sports. Muscle strength and power are decisive in individual and team sports' successful performance (Newton 1994) [5]. Handgrip Muscle strength has been defined as the maximum force developed during maximal voluntary contraction under a given set of conditions (Castro MJ 1995) [1]. Hand grip strength is a general term used by strength athletes, referring to the muscular strength and force that they can generate with their hands. The strength of a hand grip is the result of forceful flexion of all finger joints, thumbs, and wrists with the maximum voluntary force that the subject is able to exert under normal bio kinetic conditions (Cicioglu 1998) [2]. Assessment of handgrip muscle strength tests has been a popular form of testing muscle function in sports and exercise as well as in other movement related sciences for several decades. It is often used as an indicator of the overall physical strength. Handgrip strength testing has been extensively employed in a number of human movement related disciplines The aim of athletic strength testing has been to provide normative values for particular sport disciplines, to select young athletes, to distinguish among different performance levels, or to evaluate the effects of physical exercise in athletic training procedures. The assessment of hand grip strength is important in a number of situations. Finally an important purpose of muscle strength testing common for athletic, ergonomics and medical related studies has also been the assessment of functional movement performance.

The hand grip strength is, as isometric tension, a motionless hand grasping, defined as sustained muscle strain. In this condition the grip strength depends on the muscles' blood supply. Hand grip strength is an indicator of the total body strength. The quality and amount of strength are specifically essential in heavy weight sports. Nowadays, strength and strong athletes are evaluated according to the ratio of the body characteristics and body weight, its preparation to the power they produce (Castro, 1995) [1]. Dominant hand was defined as the one preferred for daily activities like writing and eating and for handling heavy objects. The players necessary have grip strength for holding the racket to execute the better performance in easy way. The purpose of the study was to find out comparison of dominant hand grip strength among inter collegiate men ball badminton players.

Methodology

To achieve the purpose of the present study forty subjects were selected various physical education colleges from Tamil Nadu from selvam college of physical education (SELVAM), YMCA college of physical education (YMCA), Tamil Nadu Physical Education Sports University (TNPESU), Dhanalaxmi college of physical education, St.John's college of physical education, Tamil Nadu. Ball badminton Inter collegiate tournaments held at Dhanalxmi college of physical education, Perambalur during October- 2017. Each college eight players were selected. Their age ranged from 21 to 25 years. The criterion variable dominant hand grip (right hand) strength was selected. The selected criterion variable grip strength was tested using the hand grip dynamometer. The data were collected and treated with ANOVA. If obtained 'F' ratio was significant scheffe's post hoc test was used to find out the paired mean difference. The level of confidence was fixed at 0.05.

Results

Table I: Comparison of Dominant Hand Grip Strength among Inter Collegiate Men Ball Badminton Players

College	Mean	S.D	Source of Variance	Sum of Squares	Df	Mean Square	' F'
Selvam	62.75	20.8	Between	3389.4	4	847.35	3.182*
YMCA	55.62	11.6	Within	9319.375	35	266.268	
TNPESU	66.0	21.6					
Dhanalaxmi	49.5	15.7					
MCPE	76.5	10.11					

* Significant

Level of significant fixed at 0.05 level. Table value 2.64 with df 4 & 35

Table – I shows that dominant hand grip strength mean values and standard deviation of Selvam, YMCA, TNPESU, Dhanalaxmi and St.John's players were 62.75 ± 20.8 and 55.62 ± 11.6 and 66.0 ± 21.6 and 49.5 ± 15.7 and 76.5 ± 10.11 respectively. The obtained 'F' value 3.182 which was greater than tabulated value 2.64 in the level of 0.05. So significant difference among the inter collegiate men ball badminton players of dominant hand grip strength.

Table II: Scheffe's Post Hoc Test for Dominant Hand Grip Strength of Inter Collegiate Men Ball Badminton Players

Selvam	YMCA	TNPESU	Dhanalaxmi	St. John's	Mean Diff	C.I
62.75	55.62	-	-		7.13	26.48
62.75	-	66.0	-		3.25	
62.75	-	-	49.5		13.25	
62.75	-	-	-	76.5	13.75	
-	55.62	66.0			10.38	
-	55.62	-	49.5		6.12	
	55.62	-	-	76.5	20.88	
		66.0	49.5		16.50	
		66.0	-	76.5	10.5	
			49.5	76.5	27.0*	

*Significant

Table-III results shows that scheffe's post hoc test for various physical education college of inter collegiate men ball badminton players. Dominant hand grip strength on various colleges of SELVAM, YMCA, TNPESU, Dhanalaxmi and St.John's inter collegiate men ball badminton players. The hand grip strength on there is significant difference between Dhanalaxmi college compared with St.John's, college of physical education. Selvam compared with YMCA and TNPESU, St.John's and YMCA compared with TNPESU, Dhanalaxmi and St.John's and TNPESU compared with Dhanalaxmi and St.John's there was no significant difference.

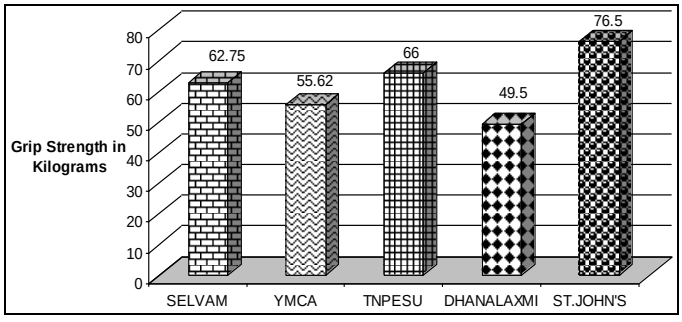

Fig 1: The Mean Values of Dominant Hand Grip Strength on Inter Collegiate Men Ball Badminton Players

Discussion on Findings

Based on results of the study statistically proved that significant difference among inter collegiate men ball badminton players of dominant hand grip strength. The results line with that Grip strength analyzed 48 left handed and 262 right handed subjects and found a significant difference between two groups Petersen *et al*., (1989) [9]. concluded that the dominant hand is significantly stronger in right handed subjects but no such significant difference between sides could be documented for left handed people (Nurgul Arinci Incel *et al*., 2002) [4]. Grip strength varied different age groups for normative study of Malaysian people. (T Kamarul & TS Ahmad 2006) [10]. Comparison of handgrip muscle strength in sportsmen and sedentary group the results shows sports men higher grip strength compared with sedentary group (Purushottam *et al*., 2017) [3]. Handgrip strength and hand dimensions in young handball and basketball players. Handball players higher grip strength compared with basketball players (Visnapuu M, Jurimae T (2007) [11]. In different weight categories, the difference in the age and weight indicators results in athletes' different hand grip strength value. However, proximity in weight and age exposes similar grip strength value. Gender, age and weight are the factors that impact grip strength (Ocal, 2007) [7]. Different sports have no significant difference of right and left hand grip when comparing grip strength (Onder Karakoc *et al*., 2015) [8]

Conclusions

There is significant difference among inter collegiate men ball badminton players of dominant hand grip strength. The St.John's college of physical education ball badminton players higher grip strength compared other physical education colleges namely Selvam, YMCA, TNPESU and Dhanalaxmi college of physical education.

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