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PHYSICAL EDUCATION

RELATIONSHIP BETWEEN ARM LENGTH, SHOULDER STRENGTH, SKILL PERFORMANCE AND BADMINTON PLAYING ABILITY

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Abstract

The purpose of the study was to find out the relationship between arm length, shoulder strength and skill performance on badminton playing ability of college men badminton players. To achieve the purpose of the study ,fifteen college Badminton players who participated in the inter-university level Badminton tournament were selected as subjects at random. For the study playing ability was selected as dependent variable for the study. And also the following variables such as arm length, shoulder strength and serving skill were selected as independent variable for the study. The selected variables like arm length was measured by using measuring tape, shoulder strength by push ups and serving skill by French short service test. The selected performance related variable such as playing ability was measured with the help of three judges. The pearsons product moment correlation was used to find out the relationship between the selected independent variables and playing ability of college men Badminton players. The results of the study showed that there is a significant relationship at .05 level of selected arm length, shoulder strength and skill performance .

Keywords: Badminton ,Playing Ability, Arm Length, Shoulder Strength, Skill.

INTRODUCTION

The identification of physical characteristics in a sport modality contributes to its success and enables to spot differences among athletes of different modalities, which is of great interest for both sport coaches and scientists. Sports performance is based in a complex and intricate diversity of variables, which include physical (general and specific conditions), psychological (personality and motivation) and body (body morphology, anthropometry and body composition) factors. The relationship between morphological variables and sports performance is the object of study of anthropometry and is an important element to be analyzed. Studies have pointed out the importance of physical characteristics for different sports such as volleyball (Duncan et al, 2006; Malousarisa et al, 2007), rugby (Gabbett, 2002), and basketball (Neto e César, 2005). Successful sporting performance at elite levels of competition often depends heavily on the explosive leg power of the athletes involved. In many individual sports such as Track and Field events, Gymnastics and Diving the ability to use high levels of strength as quickly and as explosively as possible is essential to perform at elite levels. Many team sports also require high levels of explosive power, such as Basketball, Volleyball, Netball and the Rugby and Football codes for success at elite levels of competition.

Assessment is most often thought of as the portion of the training program that occurs after an athlete has been trained. But if you want to know where you're going, you first need to determine where you're coming from. Assessment before and during a badmintonl training program allows for testing of various athletic abilities to determine strengths and weaknesses. Many movements in sports tend to be repetitive. Constant repetition can cause incorrect muscular movement patterns. These athletic weaknesses will more than likely influence your tests results. Understanding common movement patterns is helpful in determining appropriate assessment tests for your badminton training. Skills test batteries have been used in physical education and in sport to assess various components of the skills of players. These assessments served the teacher and coach to determine a player's level of ability, or their progress, weaknesses and strengths. These test batteries for sports performance usually dealt with the physical fitness components like strength and endurance, or the motor skills components, like speed, agility, power, or accuracy. Testing helps athletes and coaches assess athletic talent and identify physical abilities and areas in need of improvement.

Data has been produced for many elite individual and team sport athletes for physical and physiological characteristics, including standing vertical jump scores, related to specific sports performance(Black. & Roundy, 1994; Coutts, 1976; Latin, et al., 1994; Sawula, 1991). Greater the general quality of speed, strength, power, endurance, flexibility and agility the more quickly will be the specific skill he learned and once learned the better will be the performance(Belay, 1987) . Participation requires expertise in many physical skills and performance is often dependent on an individual's fitness level. However, few studies in the literature have investigated physical and physiological characteristics of badminton (Faude et al, 2007; Chint et al, 1995; Cabello e

González-Badillo, 2003).

Badminton is a game where the technique requires running ability, both for offensive and for defensive strategies; serving or smashing respectively. Anthropometrical measurements have revealed correlation between body structure and physical characteristics, and sports capabilities. This knowledge of mathematical correlation permits sports physicians to evaluate and to predict performance potentialities on the basis of physical characteristics and the specific requirements of the game for sport-the prediction prognostics (Sundarrajan, 1979).The team winner is used in sport competition to mean an athlete or team whose attitude, determination and fortitude combined with physical ability will consistently contribute success. It is easy to recognize winners who have great performance ability.Selection of the best players in a team is done from subjective observation of playing performance during selection trials. In addition their performance in the past years was also discussed and then the final team was selected.The changing nature of game demands better skill and increased physical abilities. It is a known fact that players should be better in morphological measures, body composition, motor fitness components and physiological traits. Court games are unique in the sense that they are played in a relatively small area and involve the handling of a shuttle cock and often an implement. It requires a high degree of skill, maneuverability and total body agility in order to gain good court position and compete with one's opponent on both offensive and defensive maneuvers. Fast starting, stopping, dodging, darting and acceleration are the fundamental requirements to a good court play. Since court games often involve condition bouts of play at a vigorous rate, a high level of anaerobic endurance and also good jumping ability is of great importance **(**Jenson and Fisher, 1983).

METHODOLOGY

SUBJECTS AND VARIABLES

Fifteen male Badminton players from various universities in the inter university tournament were randomly selected to take part in the study. The following criterion variables playing ability and independent variables (arm length, shoulder strength and serving skill) were considered in the study. The selected variables were assessed by using standard testing procedures. The selected variables like arm length was measured by using measuring tape, shoulder strength by push ups and serving skill by French short service test. The selected performance related variable such as playing ability was measured with the help of three judges in the inter university tournament.In order to study the relationship between the criterion and determinant variables and inter relationship between determinant variables were computed, using the method of Pearson's product moment correlation. The level of significance was accepted at $P < 0.05$.

RESULTS

The mean and standard deviation values among the criterion and the selected independent variables were presented in table-I

TABLE-1
THE MEAN AND STANDARD DEVIATION OF ARM LENGTH, SHOULDER STRENGTH AND SERVING SKILL ON PLAYING ABILITY OF BADMINTON PLAYERS

VARIABLES	M	S. D	N
Arm Length	91.06	4.17	15
Shoulder Strength	39.15	4.50	15
Serving	59.96	4.42	15
Playing Ability	7.60	0.34	15

The correlation coefficient values on arm length, shoulder strength and serving skill on playing ability of badminton players were presented in table-II.

TABLE-II
CORRELATION COEFFICIENT VALUES ON ARM LENGTH, SHOULDER STRENGTH AND SERVING SKILL ON PLAYING ABILITY OF UNIVERSITY MALE BADMINTON PLAYERS.

Variables		Arm Length	Shoulder Strength	Serving
Arm Length	Pearson Correlation	1		
Shoulder Strength	Pearson Correlation	.847(**)	1	
Serving	Pearson Correlation	.769(**)	.774(**)	1
Playing ability	Pearson Correlation	.747(**)	.854(**)	.780(**)

Significant at .05 level is .641

The correlation coefficient of badminton playing ability with arm length, shoulder strength and serving skill was significant at 0.05 level, since the obtained value of 0.747,0.854 and 0.780 respectively was greater than the required value of 0.641 for 13 degrees of freedom.The results of the study indicate that the selected variables were highly correlated with badminton playing ability.

DISCUSSION

In the physical fitness, mental and skill of relationship of badminton study, Whetnall and Morris (1981) presented: "badminton is a game of skill, speed, power and control. Chi (1996) studied a specific badminton physical fitness testing on badminton singles players. The results showed that elite badminton male players must be muscle strength, muscle endurance and agility, and elite badminton female players must be footwork, cardiorespiratory function, power and agility. Chin etc., (1995) investigated sport specific fitness testing of elite badminton players. The subjects are twelve Hong Kong national badminton team players. A low correlation (r = 0.65) was found between the physiological assessment and subjective ranking. This may be explained by the requirements of other factors besides physical fitness, which contribute to success in elite level badminton competition. Based on the results of the present study, we highlight anthropometric and motor test characteristics of young badminton athletes. In endurance sports, body morphology together with physical, technical, tactics, and psychological variables need to be taken into account as they are important factors for selecting athletes.

CONCLUSION

From the results obtained after analyzing the data, it was concluded that arm length, shoulder strength and serving skill have a significant relationship with badminton playing ability among university players.

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