ASSESSMENT OF VOLLEYBALL PLAYING ABILITY FROM SELECTED ANTHROPOMETRIC AND MOTOR FITNESS COMPONENTS AMONG FEMALE VOLLEYBALL PLAYERS

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ABSTRACT

The purpose of the study was to find out the assessment of volleyball playing ability from selected anthropometric and motor fitness components of female volleyball players. To achieve the purpose of the study hundred female volleyball players various colleges participated in the inter collegiate tournament in the Telangana state were selected as subjects for the study. Their age of the subjects was from 18 to 25 years. The following criterion variables selected for the study was playing ability and the selected anthropometric variables namely standing height, weight, arm length, leg length, arm circumference, calf circumference and motor fitness variables namely, speed, agility, explosive power, shoulder strength and muscular endurance were considered as independent variables in the study. The selected variables were assessed by using standard testing procedures. 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 $P < 0.05$.

Key words: Anthropometrics, Motor Fitness, Muscular Endurance, Playing Ability

Introduction

Volleyball is a team sport that requires a lot of skill, and it is very rewarding when played well. Volleyball is very demanding on the skill and physical condition of the players. During the game, players have to run, pass, catch, attack, block, and dig the ground. volleyball requires explosiveness, balance, and speed in the upper and lower body (Sawula, L. 1991)[1]. There are many reasons to play volleyball, but the game requires minimal equipment and can be played by people of all skill levels throughout life (Coutts 1996)[2]. Volleyball has become one of the most popular sports in the world. Participation requires mastery of a variety of physical skills, and performance often depends on individual strengths. Research has shown the importance of physical characteristics in sports as diverse as basketball (Malousarisa et al., 2007)[3], rugby (Gabbett, 2002)[4], and volleyball (Neto and César, 2005)[5], as well as in Fleuk et al., 2007)[6]. In basketball, players must possess physical characteristics such as speed, speed endurance, strength, endurance, cardiorespiratory endurance, and explosiveness, requiring the coordination of the entire body to perform at their best. For example, the two important skills of blocking and hitting require strength in the lower and upper body and explosive power in the arms and legs, and the batter must have good ball characteristics such as muscle tissue and strength. Therefore, the sport of volleyball requires the aforementioned physical conditions to perform body movements.

Talent analysis can optimize resources to achieve positive results from sports investments. However, the talent selection process for team sports is complex and the prognosis for success is poor. Height is an important change in the definition of skills during adolescence. Hormonal changes during old age lead to physical and emotional changes that are important for sports. The significant changes during adolescence make it difficult to predict adult outcomes based on adolescent outcomes. In addition, for a skills assessment program to be successful, effective and reliable testing methods must be adopted and used across a wide range of abilities (Pearson et al., 2006)[7]. Talent identification and development have become an important part of sports research. Sports competitions have grown in popularity based on participation and performance, and international competitions have given only the most talented individuals a chance to win prizes. When making predictions, the outcome is first anticipated. Most predicted outcomes are based on some social information or goodwill, not on the time of the prediction (Clarke and Clarke, 1972)[8] The assessment is based on continuous evaluation, experience and research. It is the result of intelligent correlation between facts and discovered patterns. Elite athletic performance often depends on the explosive power of the athlete. In many sports such as track and field, gymnastics and diving, the ability to use energy quickly and explosively is essential to achieve elite level. In addition, many sports teams such as basketball, volleyball, netball, rugby and soccer require high level competition to successfully compete at elite level. This is a very serious situation especially in Telangana for successful player selection and therefore remember that selection scores are very important for coaches as they help them in creating specific selection criteria while selecting players for a successful volleyball team.

Methodology

The purpose of the study was to find out the assessment of volleyball playing ability from selected anthropometric and motor fitness components of female volleyball players. To achieve the purpose of the study hundred female volleyball players various colleges participated in the inter collegiate tournament in the Telangana state

were selected as subjects for the study. Their age of the subjects was from 18 to 25 years. The following criterion variables selected for the study was playing ability and the selected anthropometric variables namely standing height, weight, arm length, leg length, arm circumference, calf circumference and motor fitness variables namely, speed, agility, explosive power, shoulder strength and muscular endurance were considered as independent variables in the study. The selected variables were assessed by using standard testing procedures. 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 $P < 0.05$.

Data Analysis and Results of The Study

The mean and standard deviation values of the participated subjects among the selected dependent and independent variables were computed and presented in the table- 1

Table-I
MEN AND STANDARD DEVIATION FOR THE SELECTED VARIABLES

| S.no	Variables	Mean	Sd
1	Height	169.63	9.86
2	Weight	60.40	2.33
3	Armlength	75.43	3.80
4	Leg Length	91.06	4.16
5	Arm Circumference	28.59	1.70
6	Calf Circumference	32.45	1.83
7	Speed	9.17	0.65
8	Agility	14.62	1.01
9	Explosive Power	39.41	3.36
10	Shoulder Strength	7.94	1.17
11	Muscular Endurance	41.11	2.98

Correlation Analysis

The Pearson product moment correlation was used to find out the relationship between the volleyball playing ability and the selected anthropometric and motor fitness variables of inter collegiate female volleyball players and the results are presented in table-II

Table-II
Co-efficient of correlation among the selected anthropometric and motor fitness variables with volleyball playing ability

variables	Height	Weight	Armlength	Leg length	Arm circumference	Calf circumference	Speed	Agility	Explosive power	Muscular endurance	Shoulder strength	Playing ability
Height	1											
Weight	-.070	1										
Armlength	.063	.230*	1									

Leg length	-.024	-.112	.531**	1							
Arm circum	.094	.029	-.114	-.124	1						
Calf circum	.093	-.014	-.123	-.126	.054	1					
Speed	-.108	-.233*	-.129	-.037	-.187	.021	1				
Agility	-.222*	.134	-.049	-.046	-.137	.017	.182	1			
Explosive power	.289**	-.196	.049	.018	-.008	-.016	-.092	-.047	1		
Shoulder strength	.247*	-.116	.166	-.001	-.036	-.013	-.073	.019	.830**	1	
Muscular endurance	.266**	-.179	-.007	-.068	.118	.074	-.053	-.043	.782**	.731**	1
Playing ability	**.291****	**-.203***	.043	-.011	-.031	-.001	-.092	-.004	**.923****	**848****	**.814****	1

The table – II shows that the selected anthropometric variables such as height and weight showing significant relationship with playing ability among the selected anthropometric variables whereas there was no significant relationship on arm length, leg length, arm circumference and calf circumference and among the selected motor fitness variables explosive power, shoulder strength and muscular endurance are highly correlated to the volleyball playing among the female volleyball players whereas the was no relationship found among the speed and agility. The relationship of selected anthropometric and motor fitness variables is highly correlated with a value of -.203 to .923.
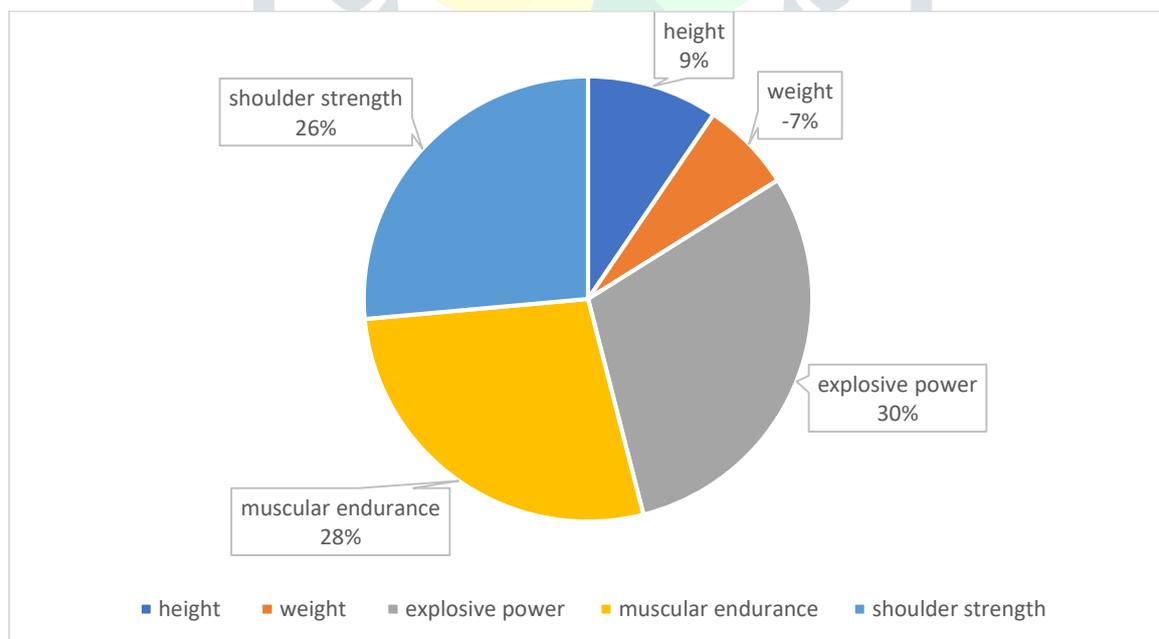
Discussion

In the case of actual games, what makes a person capable of playing a game can be said to be a person capable of their individual performances. Fitness consists of various factors and should be analysed according to the characteristics, needs, goals, and activities of the individual. Assessing the body structure at is, the body and body composition, can be an important part of improving athletic performance. Therefore, the purpose of the new study is to analyse the relationship between anthropometric characteristics and body composition and physical activity. The importance of sports depends on the combination of elastic muscle strength, fast running time to enhance competition (Gabbett and Georgieff, 2007) [9] and related factors, height, weight, and shoulder girdle, distribution of parameters (Thissen and Mayhew, 1991)[10]. There are significant anthropometric and strength differences among elite male volleyball players. These results also provide important information about the performance of elite male volleyball players in a specific sport. From a practical perspective, sports scientists, experts, and professionals should consider the strengths and characteristics of basketball players when developing individual training programs. According to (Stamm et al., 2003), [11] anthropometric factors are important for performance in all sports, with offense, parry, and feint being the most important (71-83%). Muscular endurance is the ability to repeatedly weaken muscles. Volleyball is defined as a competitive sport that involves both anaerobic and aerobic components. During long games or matches, athletes bend, jump, and move thousands of times, which requires muscle strength. This is what it takes to be successful in volleyball (Steven et al. 2009)[12]. Power can be defined as the ability to exert maximum force in the shortest amount of time, such as when jumping or throwing. The measurement of force in motion is expressed as the distance an object or body moves on a surface. Volleyball is a game of strength. To be successful in volleyball, you need to have strong muscles that provide power. Leg strength is very important for volleyball players, because they have to jump hundreds of times to perform match moves or blocks during a game or match. Therefore, a good vertical jump in dunks and blocks depends on strength, speed, and technique. Therefore, the results of this study are accurate and consistent with this study. Therefore, the results have implications for anthropometric selection and motor fitness components.

Conclusion

From the results of the study obtained after analyzing the data, it was concluded that,

1. Height, weight, explosive power, muscular endurance and shoulder strength were highly correlated to the volleyball playing ability of the inter collegiate female volleyball players from the Telangana state.
2. It is also highly recommended that all the coaches and teachers should select the players according to the correlated variables in selecting their own teams.
3. It is also recommended that coaches should adopt suitable training methods on the highly correlated variables of playing ability for the better performances.

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