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A predication of playing performance from selected anthropometric, physical and physiological variables of state level volleyball players

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Abstract

Purpose of the study is to find out the selected anthropometric, physical and physiological variables predict playing performance of state level volleyball players. 150 male state level Volleyball players participated as the samples for the study. Different anthropometric, physical and physiological variables namely (Weight, Standing height, Sitting height, Arm length, Arm span, Palm breadth, Chest girth, Waist girth, Hip girth, Thigh girth, Calf girth, Speed, Agility, Flexibility, Leg explosive strength, Muscular endurance, Harvard step up, Resting heart rate and Peak expiratory flow rate) measured of samples. Standard procedure was followed to measure the anthropometric, physical and physiological variables. To measure the playing performance of samples while playing the match five experts (Coaches) of volleyball were asked to assess the playing performance of the player in match situation and rate the players playing performance for 10 marks each. After that all five experts' marks were added and averaged to get the consolidated marks of playing performance. Multiple regression analysis with step wise method was used as statistical tool to predict the playing performance of volleyball players. Results revealed that two anthropometric measurements and one physical fitness variable predicted significant with skill performance. The implication of results are discussed.

Keywords: Anthropometric, physical, physiological, playing performance and volleyball players

Introduction

Sports is the activity through which the physical ability is maintained and improved by participating in competitive physical activity or games. It provides the enjoyment to participants and entertains the spectators. There are many kinds of sports. Some of them include single participants while some include more than one participant. Sport is recognized through the system of activity which is based on the physical ability of an individual. However, there are certain sport which is recognized through the mental ability of an individual such as chess. Sports contains some rules which ensures fair competition and allow the best person to win. Winning depends on the ability of a person who is capable of defeating the opponent by following the game rules.

These days' sports have become the major source of entertainment. It not only draws large crowd but also generates the revenue. A number of competitions is set to be a tournament where the winning person or the winning team is declared as champions. Some sports are played through leagues, whereas some are played in seasons and it follows by playoffs.

Volleyball

Volleyball is a sport played by two teams on a playing court divided by a net. There are different, versions available for specific circumstances in order to offer the versatility of the game to everyone. The object of the game is to send the ball over the net in order to ground it on the opponent's court, and to prevent the same effort by the opponent. The team has three hits for returning the ball (in addition to the block contact). The ball is put in play with a service: hit by the server over the net to the opponents. The rally continues until the ball is grounded on the playing court, goes "out" or a team fails to return it properly. In Volleyball, the team winning a rally scores a point (Rally Point System). When the receiving team wins a

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rally, it gains a point and the right to serve, and its players rotate one position clockwise.

Objective of the study

To find out which selected anthropometric, physical fitness and physiological variable significantly predict the playing performance of volleyball players

Methods

For the purpose of study 150 male state level volleyball players from various districts of Karnataka state served as the sample for the study. All samples age category was between 18 to 25. Standard procedure was followed to measure the anthropometric, physical fitness and physiological variables. To measure the Playing performance, samples were playing the match five experts of volleyball were asked to assess the skills of the player in match situation and give their marks for

10 each. After that all five experts' marks were added and averaged to get the marks of skill performance (playing performance). To find out the playing performance. Multiple regression equation was computed only if the multiples co relations are sufficiently high to warrant prediction from it then the co relation identifies the independent variables to be included and their order in the regression equation. Multiple co relation were computed by forward selection method on data obtain for volleyball players and the results were presented in the following table.

Results

In the following table we can observe the R, R Square and R Square Change of anthropometric, physical and physiological variables and "r" value with significance level in relation to playing ability.

Table 1: Multiple correlations co-efficient for the predictor of skill performance of volleyball players

Sl. No.	Variables Forward selections	R	R Square	R Square change
1	Leg Length	0.992	0.984	0.984
2	Standing Broad Jump	0.992	0.985	0.001
3	Chest Girth (Expired)	0.993	0.985	0.000

From the table it was found that the multiple correlation coefficient for predictors such as leg length, standing broad jump and chest circumference (Expired) 0.99 produce highest multiple correlation with volleyball playing performance of volleyball players. R square values showed that the percentage of contribution predictors to the playing performance (dependent variable) in the following order.

1. About 9% of the variation in the playing performance was explained in the regression model with one predictor leg length.
2. About 9% of the variance in the playing performance was explained by the regression model with two predictors' leg length and standing broad jump. An addition of 0.01% was contributed by standing broad jump.
3. About 9% of the variance in the playing performance was explained by the regression model with three predictors' leg length, standing broad jump and chest circumference (Expired).

The regression equation for the prediction of volleyball players playing performance includes leg length, standing broad jump and chest girth (Expired). As a multiple correlation on playing performance with combined effects of these independent variables are significant it is apparent that regression equation has a high predictive validities thus this equation may be successfully utilized in selecting volleyball players. Hence this hypothesis is accepted.

Discussion

From the results we can observe that anthropometric variables namely leg length and chest girth (expired) were significantly predicted playing performance of volleyball players. As we know volleyball players required taller in stature and more power in upper limb and lower limb to hit the ball as well to reach above the net. So longer leg length will definitely going to help the players to jump above the net to spike the ball and block it while opponent player is spiking. With that chest circumference is the indication of how strong your pectoral muscles are. Volleyball players require power in upper body to spike the ball efficiently. So these things may have influenced predicting playing performance of volleyball

players in all the selected anthropometric variables. Standing broad jump was the only physical fitness variable which significantly predicted playing performance of volleyball players. To reach above the net for spike and to block explosive power is very essential physical fitness quality required in volleyball players. So standing broad jump which measures the explosive power also significantly predicted playing performance of volleyball players.

Conclusion

From this study we can conclude that leg length, chest girth (expired) and standing broad jump were effectively predict playing performance of volleyball players.

Recommendations

With the help of results derived from the present study. The following Recommendation can be made

1. The present study results can be very much useful for physical educators, coaches and trainers for screening and selecting potential volleyball players at university level.
2. Further the result of the study can help experts to frame different methods of training by emphasizing the development of factors which are significantly related to volleyball performance at different levels
3. It is recommended that the present study is limited to anthropometric, physical and physiological variables, further it can be extended to motor fitness variables and psychological variable.
4. It is recommended that the present study may be repeated by selecting subjects belonging to different age groups
5. This study is only limited to male volleyball player, further it can be extend to female volleyball players also.
6. This study is only limited to Karnataka state level players it can be further extended to University, Super division and A division tournament players.

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