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A Case Study

Investigation of selected anthropometric measurements, physical, physiological variables as predictors of fast drag flick in hockey

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■ **ABSTRACT**

The purpose was to investigate the combine contribution of anthropometric measurements, physical variables and physiological variables to fast drag flick in hockey. Thirty (30) male drag flickers were selected as subjects for the purpose of this study. The selection of subjects was based on their participation in national level tournaments. The subjects belonged to various states and union territories. The standing height, weight, leg length, upper arm length, fore arm length, chest girth, shoulder width, upper arm girth and fore arm girth were the anthropometric measurements; arm and shoulder strength, back strength, leg strength, grip strength and back flexibility were the selected physical variables and positive breath holding capacity, anaerobic capacity, cardiovascular endurance and percentage of fat were the selected physiological variables. The Speed of the hockey ball during drag flick skill was measured by a Speed Radar Gun. To investigate the combined contribution of the anthropometric measurements, physical variables and physiological variables to the fast drag flick in hockey, multiple correlation was computed at 0.05 level of significance. It is also concluded that multiple correlation of anthropometric measurements, physical variable and physiological variables taken together in relation to the fast drag flick resulted in significant correlation.

■ **KEY WORDS :** Anthropometric measurements, Physiological variables, Fast drag flick

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Sports are not only an art or religion or moral ideals, but with all of these, it shares values, which are at least humanly high and always highly human. Sports are a wonderful world. Those who are not active in sports need to realize what they are missing. Those who are active must be encouraged to remain so. Sports should become an integral part of everyone's life, for sport truly is a wonderful world. Sport has emerged into a highly organized activity of human society. Play is very important for preserving better growth and development of the organism. Modern age is characterized by the progress, which is being made in all fields. Every individual is engaged in a race to excel others. As in other fields, it is equally true in the field of games and sports. Scientific investigations into performances of sportsmen are playing an increasingly important role in the training of athletes in a scientific way to attain excellence in performances in different spheres of sports.

Athletes concentrate on the development of speed, strength, endurance, agility and flexibility, etc. as a part of their preparation in their respective sports. It is equally the concern of all coaches and physical education teachers to build up physical potentialities in their athletes. In modern sports the anthropometric measurements and their relationship with various motor traits are an important guide for the coaches and athletes themselves for making training schedules, and for classification of students different groups according to their age, ability etc. Body size and limb, a segment length related to difference in body and limb mass and to the nature and placement of muscular attachment. Meteorically overcoming the variability in segmental and total body mass, in addition to overall height and length of segments, is a perceptual process of motor control. The student and the teacher must understand that this is unique for each individual and therefore the standard stimulating role of sporting achievement lies in this important factor. If we look into the factors of game of hockey some of the important qualities that a potential hockey players need are his/her aerobic potentiality, anaerobic potentiality, body composition and some of the selected strength parameters. A high level execution of hockey skill not only requires certain physical qualities (speed, explosive power, agility etc.) but also a good physical structure. One aspect of scientific approach which is receiving greater attention is that of the structural measures, lengths, width and girths of body and body composition to achieve optimum playing performance. In modern sports, the anthropometric measurements and their relationship with various physical fitness traits are an important guide for the coaches and athletes themselves for making training schedules and for classification of students into different groups according to their ability.

The drag flicker is a vital member of any hockey team often it is a good performance or indeed a faulty one which makes the difference between victory and defeat. The Drag flickers do bear the peculiar responsibility of being the one who more than anybody else can win the match by a conversion of penalty corner. Thus we can say that while performing drag flicking, speed of ball is an important factors for successful performance of drag flick in field hockey. Every sportsman differs to some extent in muscle size and length of the muscles, bone structure, posture, strength, flexibility, height, weight and personality traits which affect the motor abilities, technique, tactics and performance. The performance of an athlete depends upon his level of technical, tactical and motor abilities at the time of competition.

■ METHODOLOGY

Thirty (30) male drag flickers were selected as subjects for the purpose of this study. Purposive sample was employed for reaching valid conclusion of the study. The selection of subjects was based on their participation in national level tournaments. The subjects belonged to various state and union territories. The standing height, weight, leg length, upper arm length, fore arm length, chest girth, shoulder width, upper arm girth and fore arm girth were the anthropometric measurements; arm and shoulder strength, back strength, leg strength, grip strength and back flexibility were the selected physical variables and positive breath holding capacity, anaerobic capacity, cardiovascular endurance and percentage of fat were the selected physiological variables. The data on all the anthropometric measurements were collected by using standard procedure as available in literature and the scores for selected physical and physiological variables were obtained by using the standard tests namely, medicine ball put for arm and shoulder strength, dynamometer for back strength and leg strength, grip strength measured by grip dynamometer, back flexibility was measured by sit and reach test. Physiological variables were also measured by using standard tests for body composition through skin fold measurements, Harvard step test for cardiovascular endurance, Sargent jump for anaerobic power, manual method for positive breath holding capacity. The speed of the hockey ball during drag flick skill was measured by a Speed Radar Gun. To find out the combined contribution of the anthropometric measurements, physical variables and physiological variables to the fast drag flick, multiple correlation was computed at 0.05 level of significance.

■ OBSERVATIONS AND DISCUSSION

To find out the combined contribution of the anthropometric measurements, physical variables and physiological variables to the fast drag flick, multiple correlation was computed at 0.05 level of significance. The Co-efficient of multiple Correlation have been presented in Table 1.

Table 1 reveals that the combined contribution of

Table 1 : Combined contribution of anthropometric measurements, physical and physiological variables to fast drag flick in hockey

Dependent variable	Predictive variables	Multiple correlation 'R'	R^2
Fast drag flick	Standing height	$R_{c\ 1\ 2\ 3\ (10)(11)(14)(16)}$= .836	0.698
	Weight		
	Leg length		
	Arm length		
	Upper arm length		
	Fore arm length		
	Chest girth		
	Shoulder width		
	Upper arm girth		
	Fore arm girth		
	Arm and shoulder strength		
	Back strength		
	Leg strength		
	Grip strength		
	Back flexibility		
	Positive BHC		
	Anaerobic power		
	Cardiovascular endurance		
	Percentage of fat		

* indicate significance of value at P=0.05

anthropometric measurements, physical and physiological variable was significant at 0.05 level of significance as the computed value of multiple correlation was found to be 0.836 and R square was 0.698 that explained 69.8 variability in drag flick

Therefore, it can be observed that anthropometric measurements, physical and physiological variable are important factors that contributed towards good performance of fast drag flick.

Discussion of finding :

Multiple correlation of anthropometric measurements, physical variables and physiological variables taken together in relation to the drag flick resulted in significant correlation. The contributing variables were anthropometric measurements, physical and physiological variable are significantly related to the drag flick skill in hockey. This combined contribution is likely to play a dominant role in effective execution of fast drag flick in hockey. The results of the study are in agreement with the opinion of Anders and Myers (1999). Similar work related to the present investigation was also carried out by Glazier *et al*. (2000); Loram *et al*. (2005); Perkins (2003); Strudwick and Reilly (2000); Verma (2014); Wormgoor *et al*. (2010); Prabu and Sekarbabu (2012) and Yadav (2014).

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