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## COMPARISON OF EXPLOSIVE POWER AND AGILITY BETWEEN ATTACKERS AND DEFENDERS IN FOOTBALL



**Mukhwinder Singh**

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### Short Profile

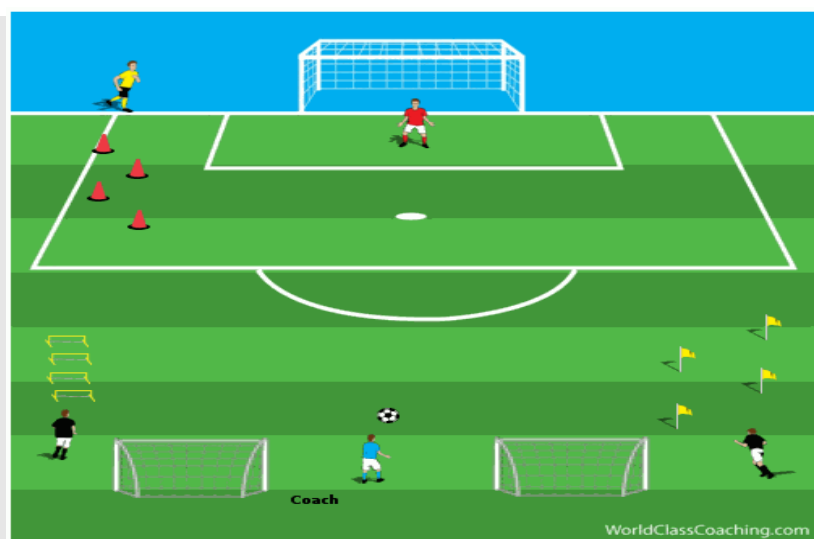
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### ABSTRACT:

The purpose of the study was to compare explosive power and agility between attackers and defenders in football. Sixty male U-19 football players (Attackers:  $N_1 = 30$  and Defenders:  $N_2 = 30$ ) selected from different schools affiliated to Punjab School Education Board, Punjab, India. All the participants were informed about aim and methodology of the study and they volunteered to participate in this study. The height of the subjects was measured with anthropometric rod

to the nearest 0.5 cm. The weight of subjects was measured by using portable weighing machine to the nearest 0.5 kg. The Vertical jump test was used to assess explosive power of the legs and shuttle run test was used to monitor the agility of the subjects. The independent samples t-test was utilized to assess the differences between attackers and defenders players. The results of present study indicated that attackers had significantly greater explosive power ( $p < 0.05$ ) and agility ( $p < 0.05$ ) than defenders players.

### KEYWORDS

*Football, explosive power, agility, attackers and defenders.*

## INTRODUCTION

Football is one of the most widely played sports in the world (Witvrouw et al., 2003; Wong & Hong, 2005). Aerobic fitness, muscle strength, explosive jumping power and agility are essential for football players (Arnason et al., 2004; Bangsbo et al., 1991). Power is defined as a person's ability to confront or overcome the resistance from the outside by using exertion muscles (Nicin, 2000). Explosive power is the ability which enables athletes to give their body, an object or a partner maximum acceleration (Petrovic et al., 2012). Agility is the physical ability, which enables an individual to rapidly change the body position and direction in precise manner (Johnson & Nelson, 1988). Explosive power and agility are necessary components of top sports performances in football. Explosive power is manifested as the maximum engagement of motor units in the shortest possible time, such as jumps in football and kicking a ball in football and the ability to make quick movements and stop suddenly (Petrovic et al., 2012). Quick start and stops and quick changes in direction are fundamental to good performance in football (Singh, 2010). Football is a difficult sport in which various activities such as fast sprints, kicks and tackles are done in succession (Kargarfard & Keshavarz, 2005). It is a sport characterized by short sprints, turning, jumping, kicking, and tackling (Wisloff et al., 1998). Specific positional roles within each playing position may demand unique physiological attributes (Reilly et al., 1990). These are reflected in the physical and physiological fitness of the football players (Reeves et al., 1999). According to Boone et al. (2012) aside from the predominant technical and tactical skills, a physical profile that is well adjusted to the position on the field might enhance sport performance. Positional differences have been the subject of interest of sport scientists for years (Al-Hazzaa et al., 2001; Bangsbo et al., 1991; Cabri et al., 1998; Puga et al., 1993). In a football game defenders perform more backward movement than attackers (Rienzi et al., 2000). Previous studies have reported that each specific playing position may have unique physical and physiological requirements (Bunc & Psotta, 2001; Burgess et al., 2006; Bloomfield et al., 2007). Therefore, the purpose of this study was to compare the explosive power and agility between attackers and defenders in football.

## MATERIALS & METHODS

### Subjects:

A total sixty male U-19 football players (Attackers:  $N_1 = 30$  and Defenders:  $N_2 = 30$ ) selected from different schools affiliated to Punjab School Education Board, Punjab, India. All the participants were informed about aim and methodology of the study and they volunteered to participate in this study. The purposive sampling method was used to select the subjects for the present study. The age of each subject was calculated from the date of birth as recorded in his school.

### Methodology:

Height measurements were taken by using the standard anthropometric rod to the nearest 0.5 cm. Taken values were recorded in 'cm'. The subject's weight was measured with portable weighing machine to the nearest 0.5 kg. Measurements were recorded in 'kg'. BMI was calculated by the formula of; Body Mass Index = Weight/Height<sup>2</sup>. The Vertical jump test (Fleishman, 1964) was used to assess explosive power of the legs. Shuttle Run test (Johnson & Nelson, 1988) was used to monitor the agility of the subjects. The time taken by the subjects between the audible signal 'start' and the finishing of the run was recorded to be the score. The time was recorded in seconds.

Table: 1 Physical Fitness Variables:

Variables	Test Used	Measurement Units
Explosive Power	Vertical Jump Test (Fleishman, 1964)	Centimeters
Agility	Shuttle Run Test (Johnson & Nelson, 1988)	Seconds

Statistical analyses:

Values are presented as mean values and SD. Independent samples t tests were used to test if population means estimated by two independent samples differed significantly. Data was analyzed using SPSS Version 16.0.

RESULTS

Table-2. Demographic Characteristics of Attackers and Defenders.

VARIABLES	Attackers (N <sub>1</sub> = 30)		Defenders (N <sub>2</sub> = 30)	
	Mean	SD	Mean	SD
Height (cm)	177.53	4.68	181.64	9.51
Weight (kg)	73.02	7.58	73.10	5.12

Table-2: shown the demographic characteristics of attacker and defender Players. The mean height of attacker players was 177.53 cm and defender players were 181.64 cm. The mean weight of attacker players was 73.02 kg and defender players were 73.10 kg.

Table-3. Comparison of Explosive Power and Agility between Attackers and Defenders.

VARIABLES	Attackers (N <sub>1</sub> = 30)		Defenders (N <sub>2</sub> = 30)		t-value
	Mean	SD	Mean	SD	
Explosive Power (cm)	47.96	5.61	42.44	4.27	<b>3.91*</b>
Agility (sec)	13.57	0.20	13.89	0.48	<b>3.31*</b>

\*Significant at 0.05 level

Table 3 presents the comparison of agility comparison of explosive power and agility between attackers and defenders players. The attacker players were found to have significantly better explosive power (p<0.05) than defender players. Similarly agility (p<0.05) was significantly greater in attacker players as compared to defender players

## DISCUSSION & CONCLUSION

In the present study explosive power and agility between attackers and defenders in football have been evaluated and compared. This study indicates the existence of explosive power and agility differences among the attackers and defenders football players. The results of the present study supported by the study of Sporis, et. al. (2009), they evaluated whether players in different positional roles have a different physical and physiologic profile. This was also supported by Reeves et al. (1999), they observed that there were differences in the anthropometric characteristics associated with playing position in football. The findings of present study are dis-agreed with the study of (Coopoo & Mcnaughton, 2012), the study indicated there were no significant differences in fitness between the various playing positions in South Africa professional football. The findings of present study revealed that attacker players were found to have significantly better explosive power and agility as compared to defender players. These results confirm the fact that attackers are more developed than the defenders. The results of present study are in line with the study of Gil et al. (2007) who evaluated that attackers were faster than defenders. Reilly (1979) has reported that defender had relatively high mean scores in vertical jump than midfielder. The result of the present study is not in line with the study of above author. It is concluded that attackers had better explosive power and agility than defenders.

## REFERENCES

1. Al-Hazzaa H.M., Almuzaini, K.S., Al-Rafae. A., Sulaiman, M.A., Dafterdar, M.Y., Al-Ghamedi, A. & Khuraiji, K.N. (2001) Aerobic and anaerobic power characteristics of Saudi elite soccer players. *J Sports Med Phys Fitness*, 41: 54–61.
2. Arnason, A., Sigurdsson, S.B. & Gudmundsson, A., Holme I., Engebretsen L. & Bahr, R. (2004) Physical fitness, Injuries, and team performance in soccer. *Med.Sci. Sport Exerc*, 36(2): 278-285.
3. Bangsbo, J., Norregaard, L. & Thorsoe, F. (1991) Activity profile of competition soccer. *Canadian Journal of applied sports science*, 16:110-116.
4. Bangsbo, J. (1994) The physiology of soccer with special reference to intense intermittent exercise. *Acta Physiologica Scandinavia*, 151 (619):1-156.
5. Bloomfield, J., Polman, R. & O'Donoghue, P.(2007) Physical demands of different positions in FA Premier League soccer. *Journal of Sports Science and Medicine*, 6(1): 63-70.
6. Boone, J., Vaeyens, R., Steyaert, A., Bossche, L.V. & Bourgois, J. (2012) Physical fitness of elite Belgian soccer players by player position. *J Strength Cond Res*, 26 (8):2051-7.
7. Bunc, V. & Psotta, (2001) R. Physiological profile of very young soccer players. *Journal of Sports Medicine and Physical Fitness*, 41(3):337-341.
8. Burgess, D.J., Naughton, G. & Norton, K.I.(2006) Profile of movement demands of national football players in Australia. *J Sci Med Sport*, 9(4):334-41.
9. Cabri, J., De Prof, E., Dufour, W. & Clarys, J.P.(1998) The relationship between muscular strength and kick performance. In: *Science and Football*. Reilly, T, Lees, A, Davids, K, Murphy, W, eds. London: E. and F. N. Spon, 168–193.
10. Coopoo, Y. & Mcnaughton, L.R.(2012) Selected fitness profiles of football players in relation to their playing position. *African Journal for Physical, Health Education, Recreation and Dance*, December (Supplement 2), 189-197.
11. Fleishman, E.A.(1964) *The structure and measurement of physical fitness*. Englewood Cliffs, N.J.: Prentice- Hall, Inc.
12. Gil, S.M., Gil-Ruiz F., Irazusta, A. & Irazusta, J. (2007) Physiological and anthropometric characteristics

- of young soccer players according to their playing position: relevance for the selection process. *J Strength Cond Res*, 21:438–45.
13. Johnson, B.L. & Nelson, J.K. (1988) Practical measurements for evaluation in physical Education, 3rd Ed. Delhi: Surjeet Publications.
  14. Kargarfard, M. & Keshavarz, S. (2005) Study of Aerobic and anaerobic power of the Iranian Premier League soccer players playing in different positions. *Journal of Harekat, Tehran*, 27:137-152.
  15. Nicin, D. (2000). *Antropomotorika (teorija)*. Novi Sad: Fakultet fizi ke kulture.
  16. Petrovic, M., Mihajlovic, I., Smajic, M. & Dinic, I. (2012) Differences in the indicators of explosive power of legs of athletes in different sports activities. *Acta Kinesiologica* 6 (1): 66-69
  17. Polman, R., Walsh, D., Bloomfield, J. & Nesti, M. (2004) Effective conditioning of female soccer players. *Journal of sports sciences*, 22(2): 191-203.
  18. Puga, N., Ramos, J., Agostinho, J., Lomba, I., Costa, O. & Freitas, F. (1993) Physical profile of a first division Portuguese professional soccer team. In: *Science and Football II*. Reilly, T, Clarys, J, and Stibbe, A, eds. London: E & FN Spon, 40–42.
  19. Reeves, S.L., Poh, B.K., Brown, M., Tizzard, N.H. & Ismail, M.N. (1999) Anthropometric measurements and body composition of English and Malaysian footballers. *Malaysian Journal of Nutrition*, 5: 79-86.
  20. Reilly, T., & Thomas, V. (1976) A motion analysis of work-rate in different positional roles in professional football match-play. *Journal of Human Movement Studies*, 1976; 2:87-89.
  21. Reilly, T. (1979) What research tells the coach about soccer. Washington, DC: AAHPERD.
  22. Reilly, T., Sechei, N., Snell, P. & Williams, C. (1990). *Physiology of sports*. London: E & FN Spon.
  23. Rienzi, E., Drust, B., Reilly, T., Carter, J.E.L. & Martin, A. (2000) Investigation of anthropometric and work-rate profiles of elite South American international soccer players. *Journal of Sports Medicine and Physical Fitness*, 40: 162-169.
  24. Singh, N. (2010). A comparative study of motor performance level among categorized skilled hockey players. *International Journal of Educational Administration*, 2(2):403-410
  25. Sporis, G., Jukic, I., Ostojic, S.M. & Milanovic, D. (2009) Fitness profiling in soccer: physical and physiologic characteristics of elite players. *J Strength Cond Res*, 23(7):1947-53.
  26. Wisloff, U., Helgerud, J & Hoff, J. (1998) Strength and endurance of elite soccer players. *Med. Sci. Sports Exerc.* 30:462– 467
  27. Witvrouw, E., Danneels, L., Asselman, P. & D'Have, T. & Cambier, D. (2003) Muscle flexibility as a risk factor for developing muscle injuries in male professional soccer players a prospective study. *The American Journal of Sports Medicine*, 31(1):41-46.
  28. Wong, P. & Hong, Y. (2005) Soccer injury in the lower extremities. *Br J Sports Med*, 39(8):473-82.

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