

A comparison of agility and functional performance among recreational football players

Muntazir Ahmad Bhat

Abstract

Agility is described as the capacity to respond and change direction rapidly and efficiently in order to achieve a certain purpose, such as avoid, mislead, react to the opponent, create space, and so on. Any action performed with a specific aim or action with purpose is referred to as functional performance. Agility is one of the important factors that contribute to an individual's ability to perform successfully in both everyday tasks and leisure pursuits. However, there is little evidence of a link between agility and functional performance in recreational athletes. The primary goal of this study is to discover the link between agility and functional performance in recreational football players.

Keywords: *agility, t-test, triple hop test, functional performance, recreational players*

Introduction

Agility is described as the capacity to respond and change direction rapidly and efficiently in order to achieve a certain purpose, such as avoid, mislead, react to the opponent, create space, and so on [1]. Agility is one of the important factors that contribute to an individual's ability to perform successfully in both everyday tasks and leisure pursuits. Agility is influenced by several factors, including response time, strength, power, and decision making [2]. Agility is critical for improving game performance [3]. Most agility exercises involve rapid acceleration, change of direction, and rapid deceleration; power is important for the ability to accelerate [4]. One of the most essential components of off-season strength and conditioning regimens is agility improvement. There is a lot of interest in football right now in establishing a field test that can properly evaluate the agility of football players. In a game, direction shifts can be performed to either pursue or escape an opponent or to respond to a moving ball. As a result, it has been established that responding to a stimulus is a component of agility performance [5]. Functional performance refers to any activity performed with a specific aim in mind. Functional movement refers to any action performed with a specific goal in mind. Functional performance tests, such as the hop test and the Agility T-test, are closed chain in nature and so incorporate the functionally occurring joint loading forces and kinematics. Athletes seldom run in a straight path, with the exception of track sprinting and marathon running. Athletes are continuously forced to shift direction in the majority of sports. There is a modern speed development paradigm in the sports training world that places a higher focus not just on acceleration, maximum speed, and speed endurance, but also on change of direction drills. The conventional concept of the capacity to change direction quickly has been renamed change of direction speed or planned agility. It has lately been proposed that agility includes both a change of direction movement as well as a perceptual and decision-making component, because changes of direction and speed are frequently made in reaction to an opponent's activity. Highly talented players outperformed less skilled players in terms of mobility and decision times [6]. The corpus of studies on the link between agility and functional performance has grown substantially in recent years. However, the relationship between the two among recreational football players is still unclear. The T-Test and Triple Hop tests were selected for a research because they have high construct validity and reliability. The goal of this research is to discover the link between agility and functional performance in recreational football players. The link discovered between the two will be clinically significant, useful in rehabilitation, and will aid in performance enhancement.

Methodology

Study design and subjects

A single-blind, observational study design was conducted on recreational football college players in and around Mangalore, India. 24 participants based on inclusion criteria were selected in this study by convenience sampling technique. This study was performed from October 2020 to February 2021 in South India. Subjects included in this study were male recreational football players aged between 18 to 25 years who were willing to

participate. Subjects who are not physically fit, the recent injury to lower limb, any neurological condition affecting the neuromuscular system and balance, and professional players were excluded from this study. The study protocol was approved by Institutional Ethical Committee.

Procedure

All the participants gave written consent to participate in the study after a brief explanation of the purpose of the study and test procedure. T-Test and Triple Hop Test were used as outcome measures to measure agility and functional performance of participants respectively.

Outcome measures

T-test

T-test was done with the markings on the ground with standard measurement i.e., 4.57 m $\times$ 2 horizontal distance and 9.14 m vertical distance dividing the horizontal line from the center at an angle of 90 degrees. Cones were used for markings in each point i.e., on starting point, of vertical line, two ends of a horizontal line, and center of a horizontal line forming a “T” shape. Participants were instructed to sprint from the starting point of the vertical line to the center of the horizontal line and shuffle sideways to left first to the end of the horizontal line and shuffle back to the right end of the same line then come to the centre and run backward-facing front to the starting point and time was measured from start to end.

Triple Hop Test

In the triple hop test, the aim is to jump as far as possible on a single leg three consecutive times, without losing balance and landing firmly. The distance was measured in meters from the start line to the heel of the landing leg.

Statistical Analysis

Karl Pearson's correlation coefficient was used to find the relation between agility and functional performance test (TTest & Triple Hop Test). $p < 0.05$ was considered significant.

Result

Descriptive data were expressed in mean and standard deviation ($X \pm S.D$). The Mean age was 22 ± 2.5 years, the mean T-test value was 13.22 ± 0.99 , and the triple hop test was 525.54 ± 19.13 . Statistically significant strong positive correlation was found between the scores of T-test and Triple hop test ($r = 0.739$, $p = 0.000$) (Figure 1)

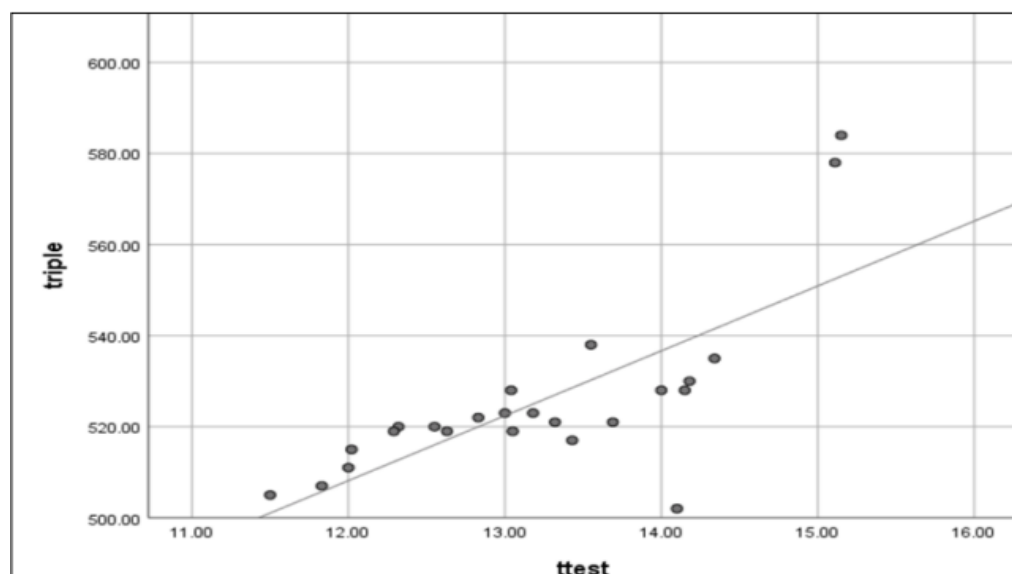


Fig 1: Correlation between agility and functional performance in recreational football players.

Limitations

The sample size considered for the study was small and had included only male recreational football players of the 18-25 age group.

Conclusion

The present study concluded that there is a correlation between agility and functional performance in recreational football players and when there is good agility there will always be a better functional performance.

References

1. Taskin M, Peker AT, Taskin H, Unveren A. The relationship between agility and orientation ability in judoka children. *Türk Spor ve Egzersiz Dergisi* 2017;19(3):350-3.
2. McMillan DJ, Moore JH, Hatler BS, Taylor DC. Dynamic vs. static stretching warm up: The effect on power and agility performance. *Journal of Strength and Conditioning Research* 2006;20:492-499.
3. Sood H. Physical and performance correlates of agility in tennis players, A Master's Thesis presented to the Faculty of the Graduate Program in Exercise and Sport Sciences, Ithaca College 2013.
4. Halberg GV. Relationships among power, acceleration, maximum speed, programmed agility, and reactive agility: The neural fundamentals of agility. Degree of Master. Central Michigan University, Mount Pleasant, MI 2001.
5. Chelladurai P. Manifestation of agility. *Can Assoc Health Phys Educ Recreation J* 1976;42:36-41.
6. Sporis G, Jukic I, Milanovic L, Vucetic V. Reliability and factorial validity of agility tests for soccer players. *The Journal of Strength & Conditioning Research* 2010;24(3):679-86.
7. Spiteri T, Nimphius S, Hart NH, Specos C, Sheppard JM, Newton RU. Contribution of strength characteristics to change of direction and agility performance in female basketball athletes. *The Journal of Strength & Conditioning Research* 2014;28(9):2415-23.
8. Marcovic G. Poor relationship between strength and power qualities and agility performance. *Journal of Sports Medicine and Physical Fitness* 2007;47(3):276.
9. Hamilton RT, Shultz SJ, Schmitz RJ, Perrin DH. Triplehop distance as a valid predictor of lower limb strength and power. *Journal of athletic training* 2008;43(2):144- 51