

# THE RELATIONSHIPS BETWEEN CHANGE OF DIRECTION SPEED, STRAIGHT SPRINT SPEED AND JUMP ABILITY IN COLLEGEATE SOCCER PLAYERS

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## Introduction

Changes of direction are required in many field sports. The ability to change direction while sprinting is a determinant of field sports performance or a prerequisite for successful participation in modern-day field sports. However, the factors determining to different change of direction performance have not been revealed. The purpose of this study was to investigate the straight sprint speed and jump ability related to change of direction speed.

## Methods

One hundred and seventy-five male collegiate soccer players, who belonged to the team between the seasons in 2005 to 2010, participated in this study. Pro-agility test was conducted in 2005-2006, 10m shuttle test was conducted in 2007-2008, and zigzag agility test was conducted in 2009-2010. 20m sprint test and counter-movement jump (CMJ) test were conducted throughout all seasons. 5m sprint time, 10m sprint time, 20m sprint time and flying 10m sprint time were evaluated from the lap times of 20m sprint test. The relationships between each change of direction speed, sprint speed and CMJ were analyzed using correlational analysis and multiple regression analysis.

## Results & Discussion

Each change of direction time was statistically correlated with all sprint times and jump ability. Through multi-regression analysis, however, each change of direction time was significantly correlated with different sprint time or jump ability each other (Table1). Therefore, it was considered that straight sprint speed and jump ability related to change of direction speed, while specific physical factors determining to different change of direction performance would be exist.

Table1. Result of multiple regression analysis.

<b>Pro agility test</b>	<b><math>\beta</math> -coefficients</b>	<b>p value</b>
Intercept	4.099	
10m sprint	0.805	< 0.001
CMJ	-0.006	0.017
<b>10m shuttle test</b>	<b><math>\beta</math> -coefficients</b>	<b>p value</b>
Intercept	3.544	
20m sprint	0.331	0.002
CMJ	- 0.007	0.005
<b>Zigzag agility test</b>	<b><math>\beta</math> -coefficients</b>	<b>p value</b>
Intercept	3.144	
Flying 10m sprint	1.405	0.002
5m sprint	0.668	0.038

## Conclusion

Specific sprint speed and jump ability determine to different change of direction speed.