

## Associations between Relative Power on Different Measures of Change of Direction Speed

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### ABSTRACT

Change of direction speed (CODS) is an important characteristic for successful athletic performance in most sports. However, it stands to reason that different CODS tests may have different athletic attributes that influence success on these assessments. **PURPOSE:** The purpose of this study was to examine the relationships between relative power and two different measures of CODS. **METHODS:** Data from 39 NCAA division I (age:  $20.1 \pm 1.2$  yrs; height:  $164.9 \pm 6.5$  cm; body mass:  $63.8 \pm 7.8$  kg) and 18 NCAA division II (age:  $19.3 \pm 1.2$  yrs; height:  $165.7 \pm 5.7$  cm; body mass:  $63.3 \pm 6.3$  kg) women's soccer teams was collected and analyzed for this study. The 505-agility test (505) and modified T-test (Mod T) were performed on a turf/grass soccer field following a standardized dynamic warm-up. Data was analyzed using IBM SPSS statistics (Version 24.0; IBM Corporation, New York, NY). Person's correlation coefficient was used to relate relative power to the 505 and Mod T. Linear regression analysis was completed to determine the influence of relative power on the different measures of CODS. **RESULTS:** A significant large correlation was found between relative power and 505 ( $r = -0.714$ ,  $p = 0.0001$ ), but not Mod T ( $r = 0.259$ ,  $p = 0.059$ ). Furthermore, regression analysis revealed 51% of the variance in 505 was explained by relative power ( $p = 0.0001$ ). In comparison, only 7% of the variance in Mod T was explained by relative power ( $p = 0.059$ ). **CONCLUSION:** The results of this study reveal a stronger relationship between relative power to 505 performance, but not Mod T. This may be explained by the nature of the tests themselves. Based on the need for greater hip and knee flexion when performing the 505 test in contrast to the Mod. T, it appears that greater lower-body power may significantly impact performance on this measure. This suggests that measures of COD that require less hip and knee flexion may be more reliant on foot speed and quickness. When assessing CODS, strength and conditioning professionals should consider multiple measures of CODS to determine the ability of an athlete to change direction when performing sport-specific tasks.