

# RELATIONSHIP BETWEEN SPEED AND CHANGE OF DIRECTION DEFICIT IN NCAA BCS DIVISION 1 FOOTBALL

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## PURPOSE

- The purpose of this study was to investigate the relationship between commonly collected sprint tests and change of direction tests in college football. As the change of direction deficit has become a popular metric of examining 505 performances in relationship to the sprints, the relationship between the 40 yard dash (40d) and ProAgility (ProA) test has not been examined in research in terms of the deficit between sprint and change of direction performance.
- Practitioners often use a deduction of 0.25s from the 40d to make a judgement on if the athlete can change direction well enough (Historical method).
- This study was to examine the efficacy of the historical measurement in comparison to some more novel techniques inspired by the change of direction deficit.



## METHODS

- 479 collegiate athletes (n=479, height = ,weight = 101.64± 18.5kg,) participated in routine testing of the 40d and ProA.



## RESULTS

- The means were calculated for 40d and ProA (40d= 4.84± .33s, ProA=4.42± .28s) as well as change of direction deficits for the Historical CODD (0.25s), Actual CODD (0.43± .17s), and Percentage CODD (91.27± 3.3%). When calculating the difference between predicted and actual differences for both methods, the mean differences were (PercentCODD<sub>meandiffpred-act</sub>= 0.00s± 0.16s) and (HistoricalCODDxv<sub>meandiffred-act</sub>= 0.18± 0.18s)

## CONCLUSIONS

- The use of the percentage derived model was the most efficacious to describe the optimal relationship between speed and change of direction as the difference between predicted and actual was 0.00s. It very accurately predicted the performance of the change of direction deficit when compared to the historical method.

## PRACTICAL APPLICATION

- When determining if your athletes change of direction ability is sufficient, it is efficacious to multiply their 40d by 91.27%.
- If the results significantly vary from this, it should alert the practitioner to do a further investigation into why this discrepancy is there.
- This serves as a quick screening to determine who needs a full assessment into change of direction abilities.