

COMPARING ANTHROPOMETRIC AND PERFORMANCE DIFFERENCES OF ROOKIES BY DRAFT ROUND USING THE 2024 NATIONAL FOOTBALL LEAGUE COMBINE DATA

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INTRODUCTION

- The National Football League (NFL) conducts an annual combine to assess anthropometric and athletic ability of hundreds of collegiate players in a variety of tests in preparation for the draft.
- Improved sport analytics may help teams better predict which players to draft to help the team for the following season.

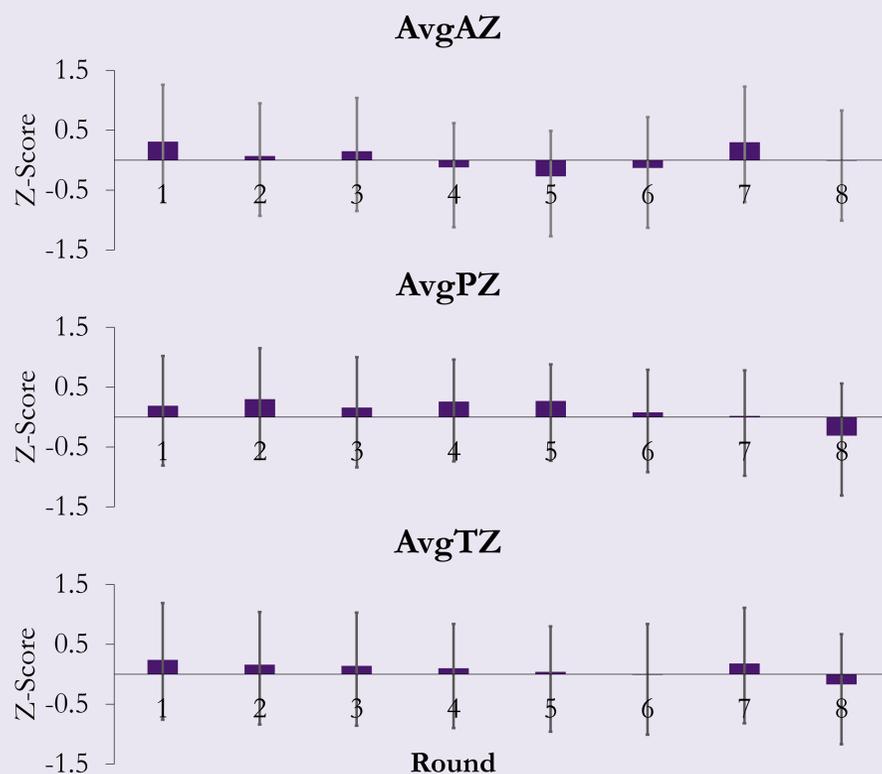
METHODS

- Data from four anthropometric (Body Mass Index; Hand Size; Arm Length; Wingspan) and seven performance tests (40yd Sprint; 10yd Split; Vertical Jump; Broad Jump; 3 Cone Drill; 20yd Shuttle; 225lb Bench Press) of 321 players were analyzed from open-source databases.
- Data from completed tests were normalized to create average anthropometric (AvgAZ), performance (AvgPZ), and total (AvgTZ) based Z-Scores.
- Players were assigned a number (Rd1-8) based on their draft round, with undrafted players assigned a value of 8.
- A One-way ANOVA ($\alpha = 0.05$) was conducted between AvgAZ, AvgPZ, and AvgTZ and 2024 Draft Round.
- Additionally, players were separated into position groups (Offensive Line; Defensive Back; Defensive Line; Running Back; Linebacker; Quarterback; Tight End; Wide Receiver; Specialists) and separately analyzed.
- Post-hoc analyses on significant findings were analyzed with LSD correction factor.



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NFL COMBINE PERFORMANCE OF HIGHER DRAFTED PLAYERS WAS BETTER THAN UNDRAFTED PLAYERS. HOWEVER, SIZE WAS NOT EXCLUSIVE TO DRAFTABILITY IN THE 2024 NFL DRAFT.

RESULTS

- A significant omnibus result for all players existed for AvgPZ [$F(7, 255) = 3.11, p < 0.01, \eta^2 = 0.08$] and AvgTZ [$F(7, 257) = 3.84, p < 0.01, \eta^2 = 0.10$].
- Post-hoc analyses for AvgPZ noted Undrafted players had significantly lower scores compared to Rd 1-Rd 6 of the draft.
- No other differences were noted for AvgPZ. For AvgTZ, post-hoc analyses revealed that Undrafted players were significantly worse than players drafted in Rd1-Rd6.
- No significant difference existed for AvgAZ [$F(7, 310) = 1.91, p = 0.07, \eta^2 = 0.05$].
- When separated by position, significant differences existed for Linebackers in AvgPZ [$F(7, 17) = 4.93, p < 0.01, \eta^2 = 0.67$] and AvgTZ [$F(7, 17) = 3.76, p = 0.02, \eta^2 = 0.61$]. No other position groups showed significant differences.

CONCLUSION

- Higher drafted players performed better in the NFL Combine compared to Undrafted players. However, size was not an exclusive factor to draftability in the 2024 NFL Draft.

PRACTICAL APPLICATIONS

- These findings support the use of normalized Z-scores to supplement team and scout assessments to determine draft status.
- Due to the differences seen in Undrafted players, there may be a minimum athletic threshold teams look for in the draft process.
- However, the lack of difference between other rounds suggests that NFL Combine measurables are not a major determining factor once a decision has been made to draft that player.
- Due to the varied relationships when separated by position group, the NFL should reconsider measurements at the NFL Combine to improve the process of for draft selection.