

NFL Combine Data Case Study

Physical Attributes & Players Drafting

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Opportunity

Data has been increasingly widely used in NFL, coaches and managers are using data to draft and trade players.

Dallas Cowboys started using data to draft players since early 1960s. Their highly unusual pick of wide receiver Bobby Hayes, who was a high-profile, track-and-field Olympic athlete, had a spectacular football career that eventually landed him in the Hall of Fame.

That said, athletes' physical attributes can be critical considerations when drafting players.

NFL DRAFT

The Race to Make the NFL Draft an Exact Science

The NFL has more data on its players than ever before, but evaluating prospects still involves a lot of guesswork. Here's how some teams are getting creative to find their perfect pick.

By [Kevin Clark](#) | Apr 22, 2019, 6:30am EDT

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Introduction

- Clients:
NFL team managers and coaches
- Hypothesis:
 - Different position players have specific physical figures.
 - Players' best-suited positions can be determined according to drafting tests scores.

Methodology

- Data: An NFL dataset that includes play-by-play data from the 2004 to 2019 seasons, and players' physical data like heights, weight, shuttle time, bench press repetitions etc.
- Tools: Excel, Python, Tableau

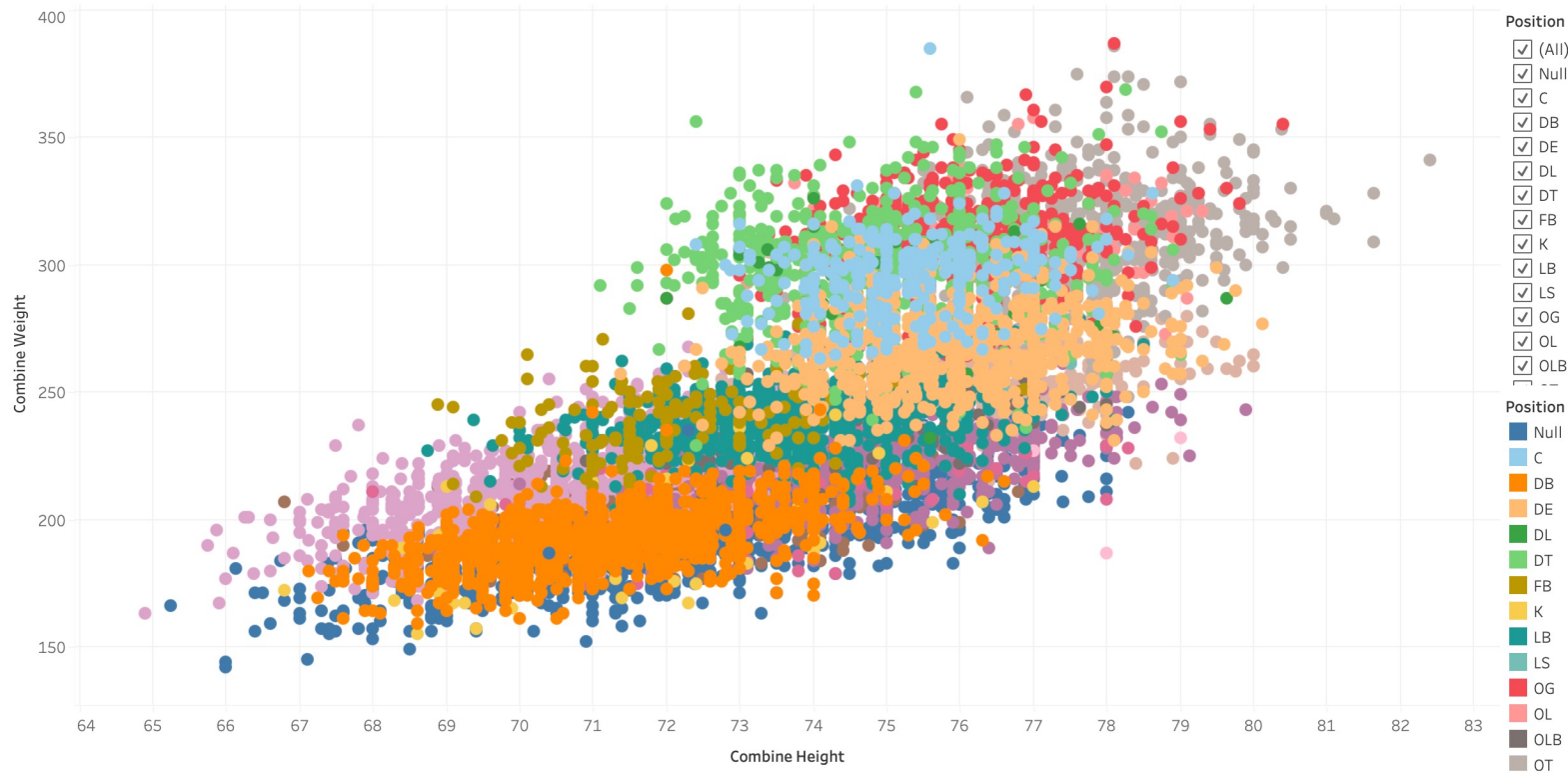




The clusters showed different positions have certain height and weight ranges

Most QBs' height is 71-78 inches, weight is 195-235 lbs

Most top QBs' height is above 72 inches and weight is 200-240 lbs



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Results

Quarterback

Height: Above **72** inches

Weight: **200-240** lbs

Wide Receiver

Height: **69 - 77** inches

Weight: **180 -230** lbs

Running Back

Height: **67-77** inches

Weight: **190-235** lbs



Defensive Tackle

Height: **72-78** inches

Weight: **270-350** lbs

Defensive Back

Height: **68-75** inches

Weight: **160-220** lbs

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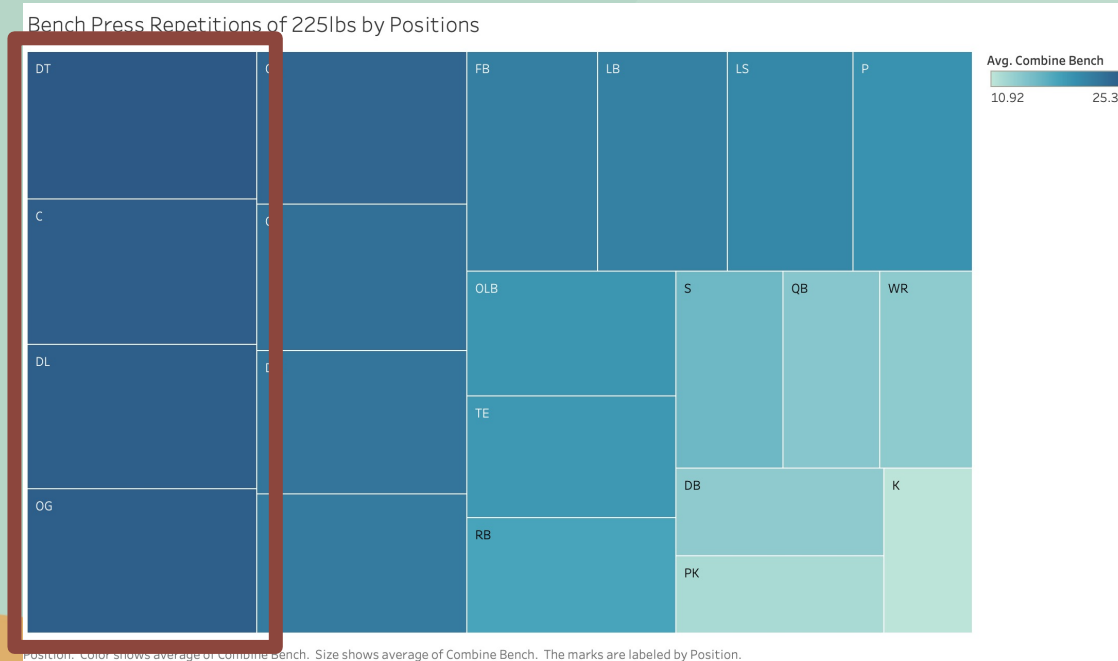
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Bench Press Repetitions of 225lbs by Positions



Defensive Tackle

Average: 25.36

01

Center

Average: 24.90

02

Defensive Line

Average: 24.80

03

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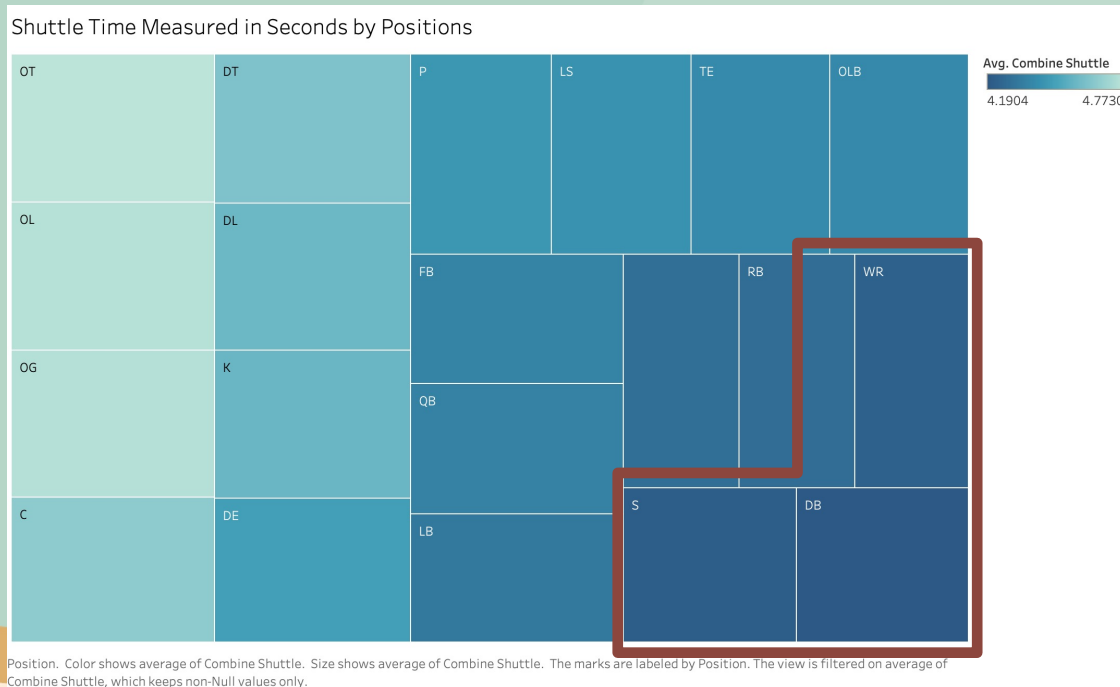
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Shuttle Time by Positions (Seconds)



Defensive Back
Average: **4.19** **01**

Safety
Average: **4.21** **02**

Wide Receiver
Average: **4.22** **03**

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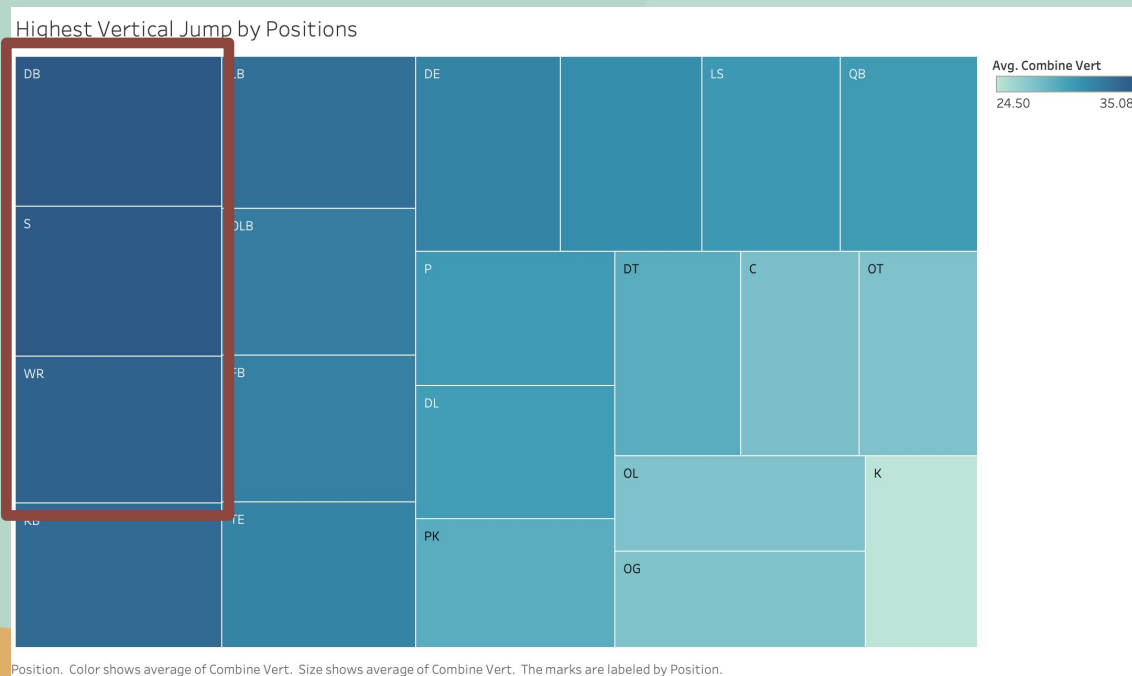
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Highest Vertical Jump by Positions (Inches)



Defensive Back
Average: **35.08** **01**

Safety
Average: **35.05** **02**

Wide Receiver
Average: **34.38** **03**

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Applications

Generic body types and physical strengths can help the coaches discover potential talents

Draft Talents



Identify Versatile Players

Players' physical advantages can be fully utilized, and they can be trained for multiple positions.
(Taysom Hill)

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Future Works

Build Models

- Build more precise regression models for different positions



More Applications

- Get more detailed stats like muscles mass and myodynamia to better identify players' physical strength distribution
- Use training data to adjust training plans

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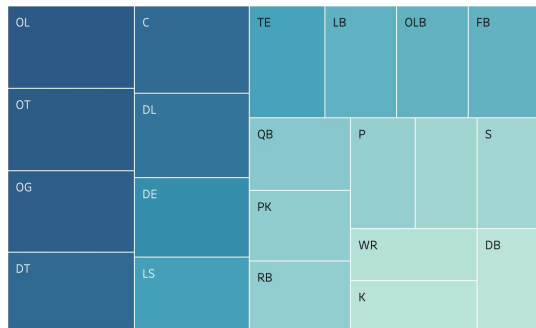
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Appendix 1

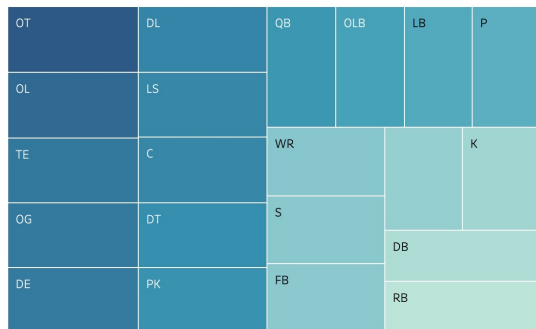
Average Weight by Positions



Avg. Combine Weight
192.2 311.5

Avg. Combine Height
70.775 77.453

Average Height by Positions



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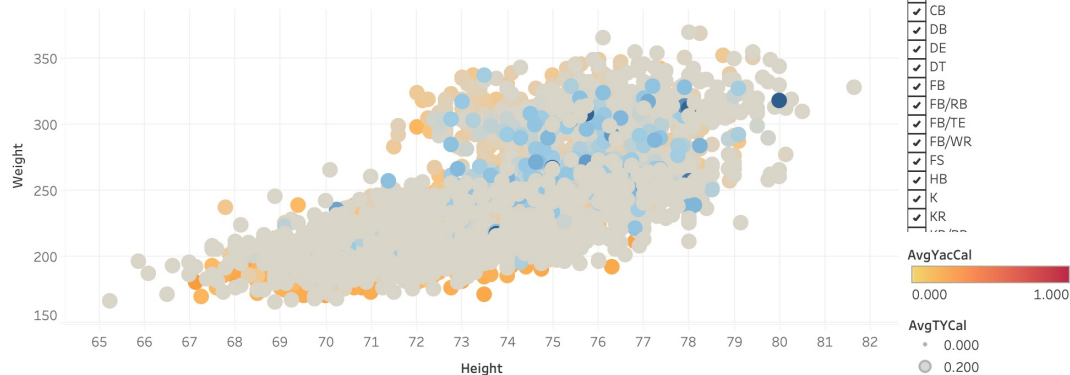
Appendix 2



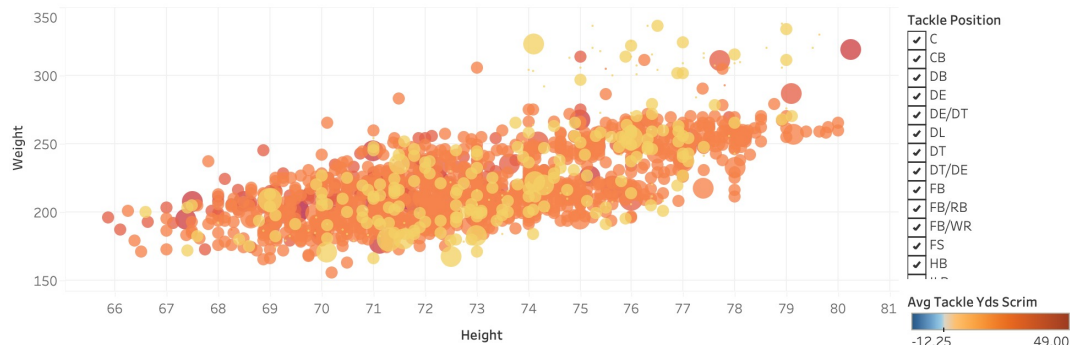
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Defensive Players Performance Measured by Tackles



Receivers Performance Measured by Average Yards After Catch and Average Total Yards



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Questions

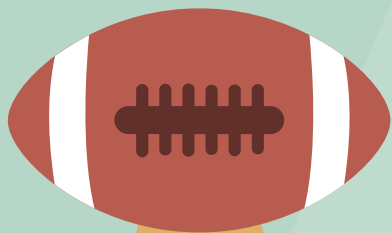
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THANKS!

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