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NCAA to NBA

HOW NCAA PLAYER PROFILE AND PERFORMANCE TRANSITION TO THE NBA

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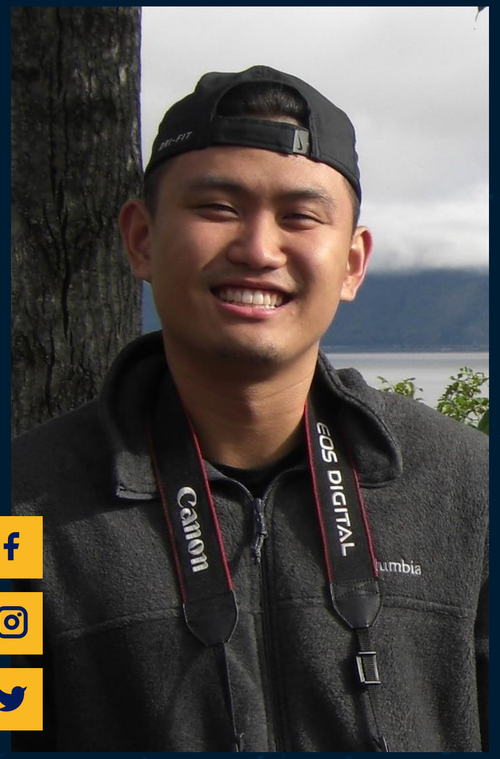
DREAM TEAM

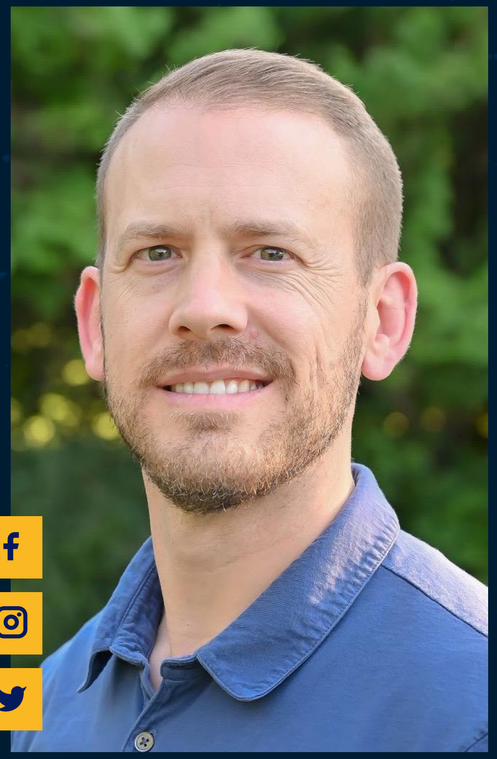
VISHAL PATEL

POINT GUARD



STEPHEN CHU

SHOOTING GUARD



STEVE THORNE

SMALL FORWARD

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PROJECT GOAL

The goal of our project is to examine collegiate level basketball and how player profile and performance ultimately translates to the NBA.

Our approach is intended to add value to the decision-making process NBA GMs use when selecting a draft pick with high ROI.

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CONSIDERATIONS

01

PLAYER PROFILE

How does height and weight influence performance from NCAA to NBA?

02

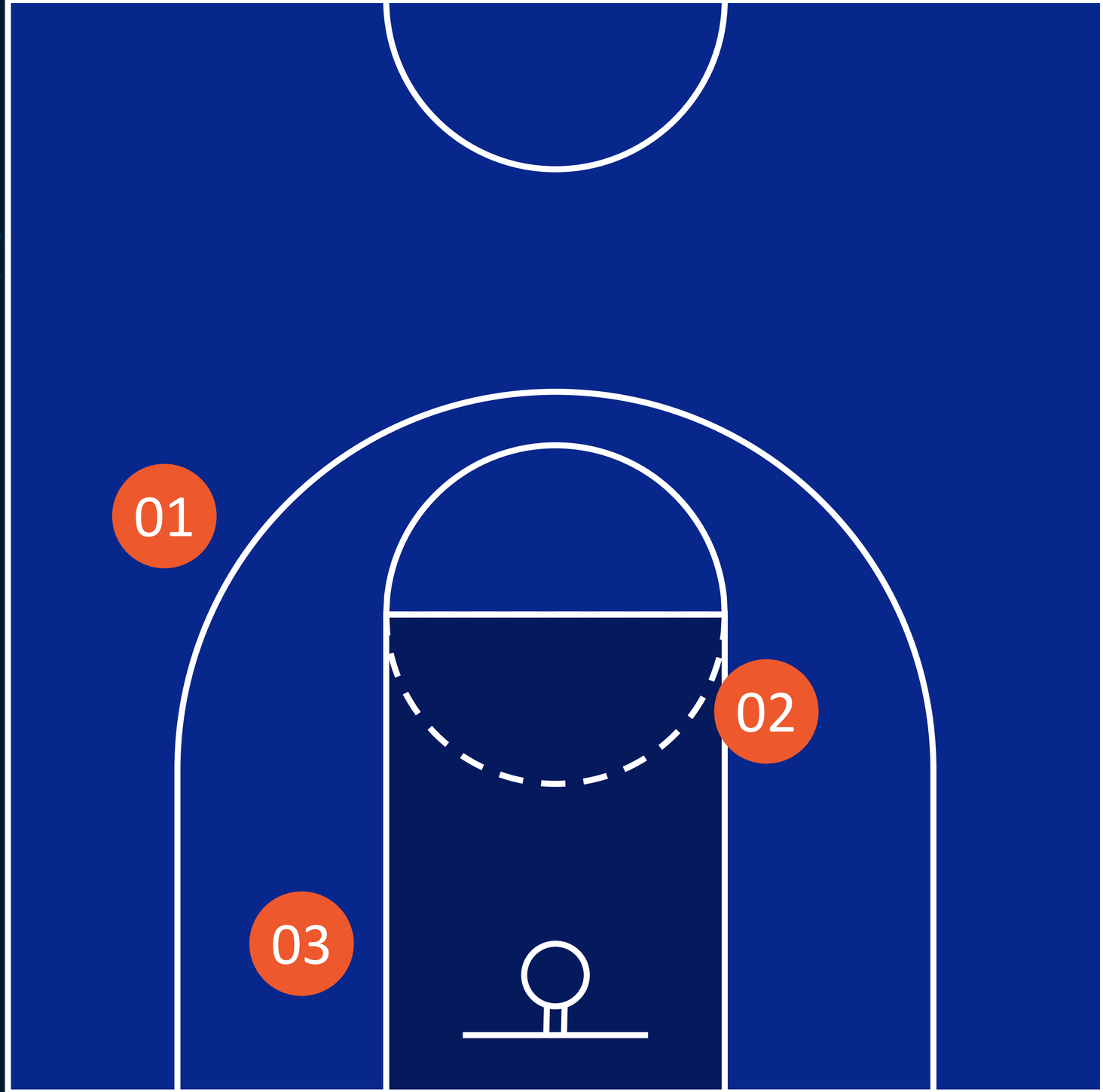
PERFORMANCE METRICS

Which box score stats matter most when determining a successful transition?

03

GAMES PLAYED IN NCAA

Does time spent in college determine performance in the NBA? Are “1-and-done” players more successful?



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DATA SOURCE:

SPORTS-REFERENCE.COM

01

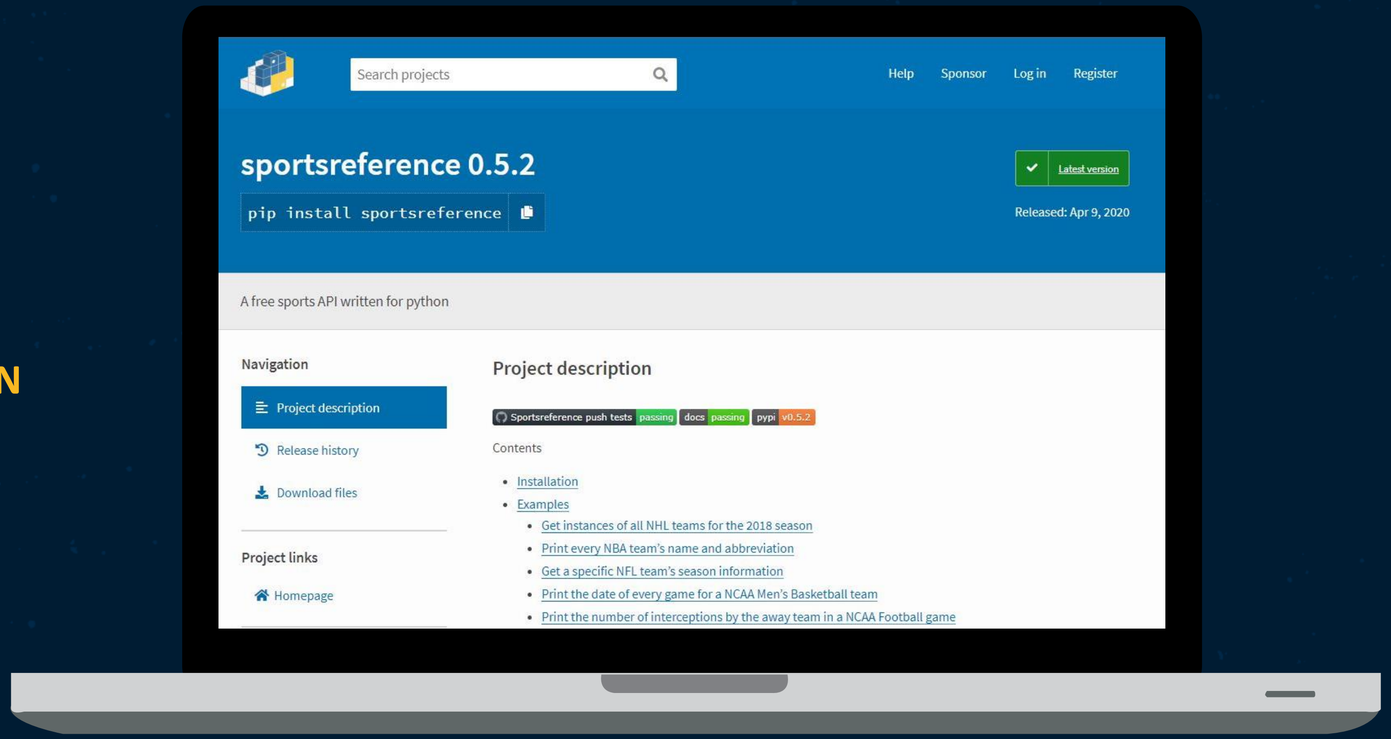
FREE API WRITTEN FOR PYTHON

Install instructions and documentation can be found here:
https://pypi.org/project/sportsreference/

02

USE PIP INSTALL

Run PIP Install in Jupyter Notebook



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DATA PROCESSING & CLEANUP

- Requested Player Packages for both NBA and NCAA players
- Each Player included a pandas DataFrame of various statistics, ex. Points, Games Played, PER
- Only included active players with playing time in NBA and NCAA
- Needed to account for missing data in NCAA

	Name	Career Height	Career Weight	Career Points	Career Games	Career Assists
0	De'Andre Hunter	79.0	225.0	778.0	63.0	112.0
1	Trae Young	73.0	180.0	3327.0	141.0	1213.0
2	Vince Carter	78.0	220.0	25728.0	1541.0	4714.0

	Name	Career Height	Career Weight	Career Points	Career Games	Career Assists
0	De'Andre Hunter	79.0	225.0	882.0	71.0	111.0
1	Trae Young	74.0	180.0	876.0	32.0	279.0
2	Vince Carter	79.0	215.0	1267.0	103.0	197.0

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PLAYER PROFILE

- How does height and weight influence performance from NCAA to NBA?

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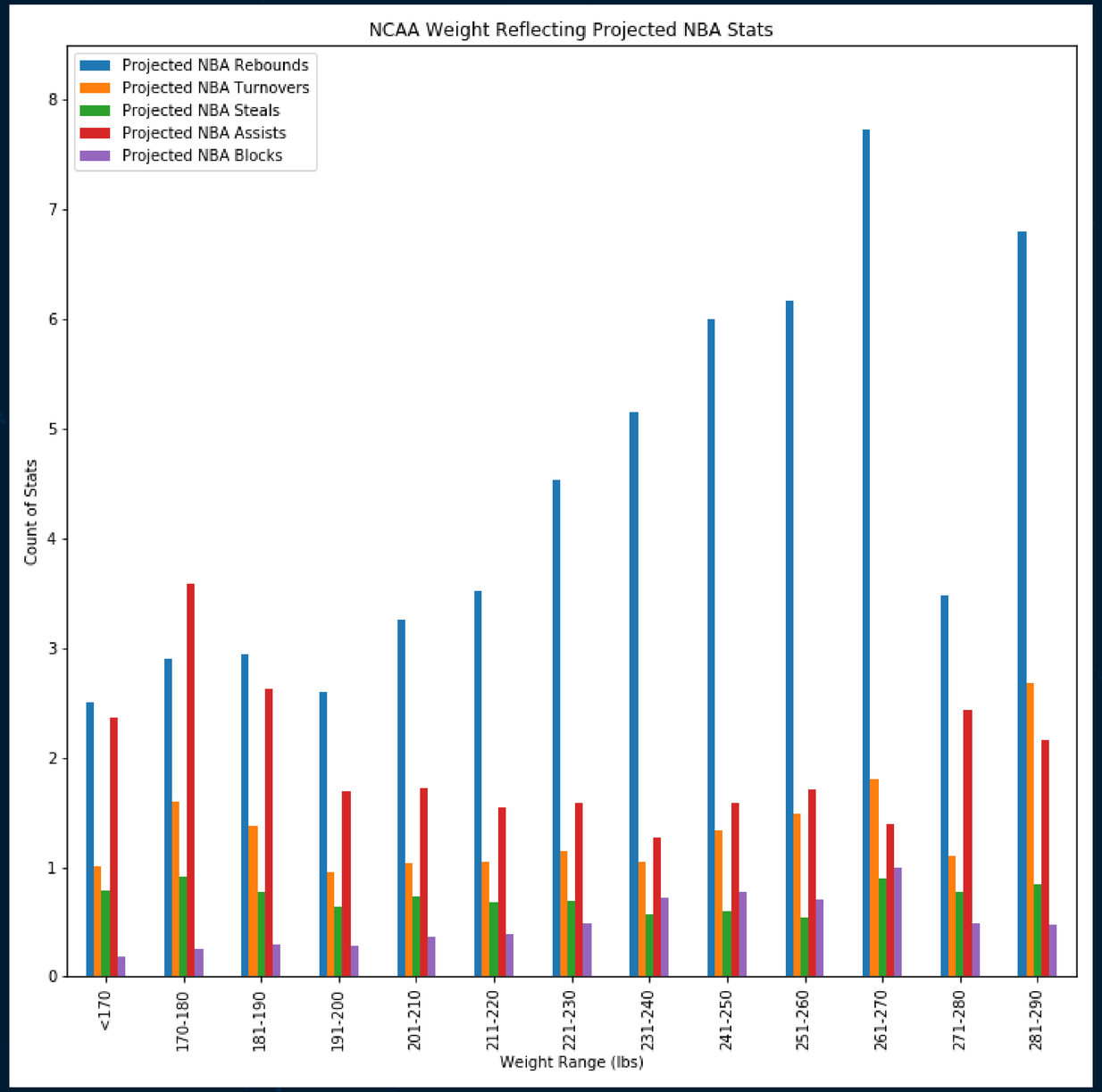
NCAA WEIGHT v NBA STATS

01 **REBOUNDS**
Shows positive trend as weight increases

02 **BLOCKS**
Observes increase in trend for blocks
Reference why blocks are less than one

03 **ASSISTS**
Displays downward trend for assists as weight increases



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NCAA HEIGHT v NBA STATS

01

HEIGHT / WEIGHT CORRELATE

Scientific data suggests strong correlation

02

TURNOVERS / STEALS

Turnovers and steals remain consistent

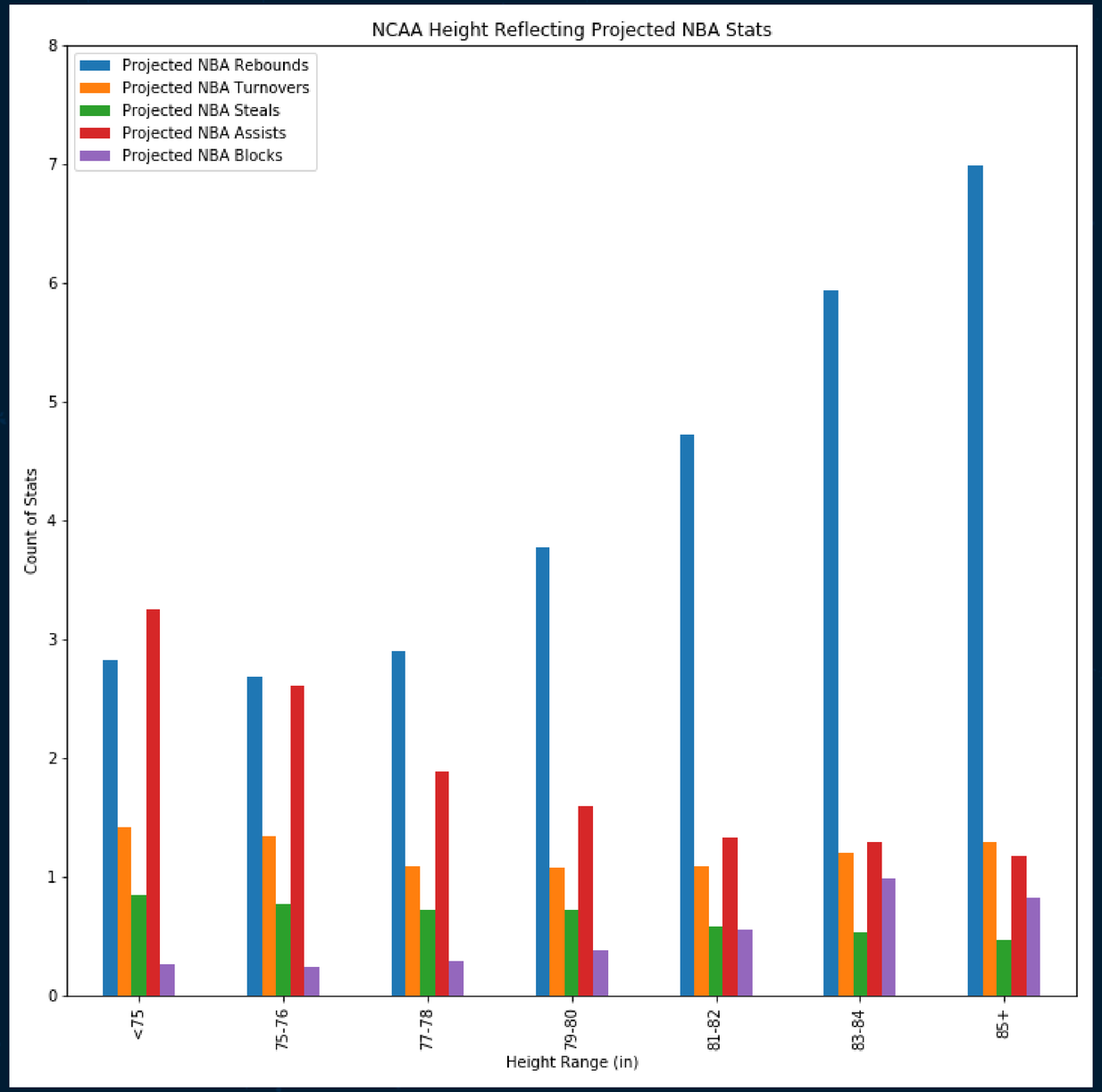
Performance has changed in last 20 years

03

FLEXIBILITY OF FORWARDS

Athletes are becoming faster, and stronger

Forwards exude most versatility in NBA



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NCAA HEIGHT/WEIGHT v NBA BOX +/-

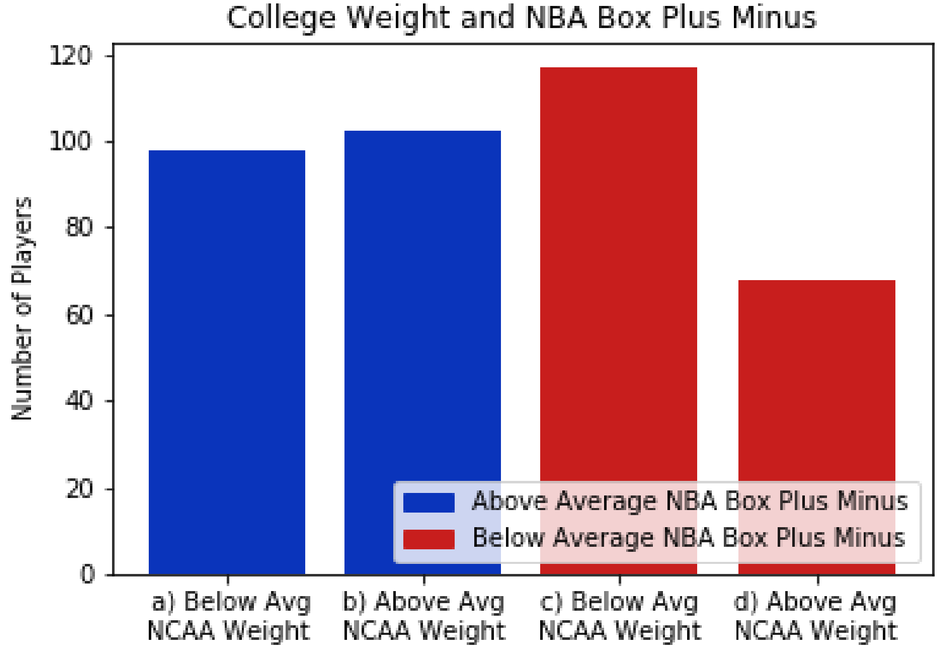
01 **AVG NCAA WEIGHT**
Average weight ~210 pounds

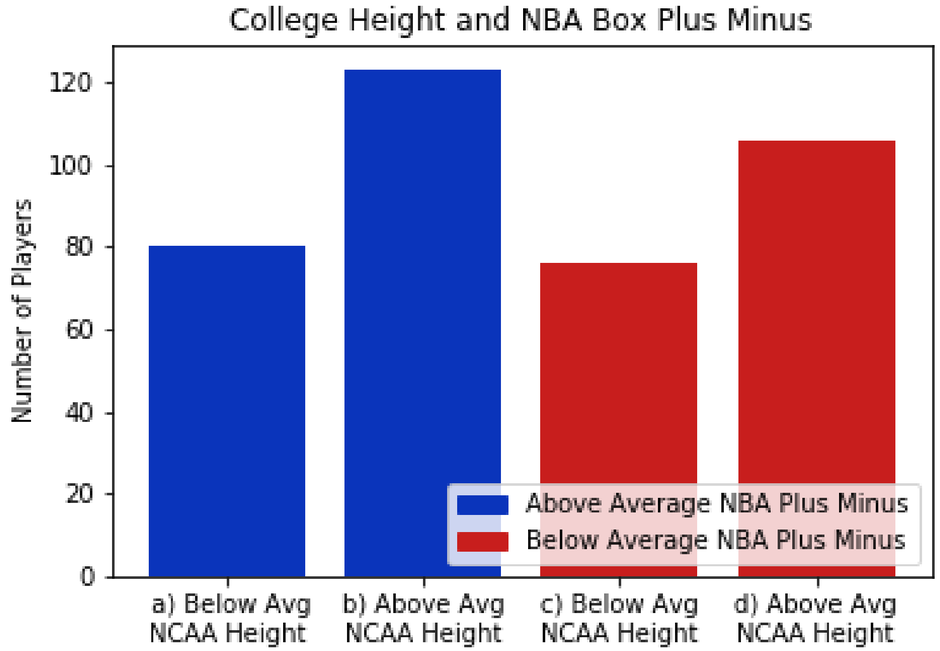
02 **AVG NCAA HEIGHT**
Average height ~6 feet 5 inches

03 **AVG NBA BOX +/-**
Average Box +/- = -1.22

04 **WEIGHT CHANGE NCAA - NBA**
Weight can vary from college to the NBA, not a great metric for determining NBA success

05 **HEIGHT CHANGE NCAA - NBA**
Taller players have greater potential to make an impact in the NBA





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PERFORMANCE METRICS

- Which box score stats matter most when determining a successful transition?

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NCAA FGP v NBA STATS

01

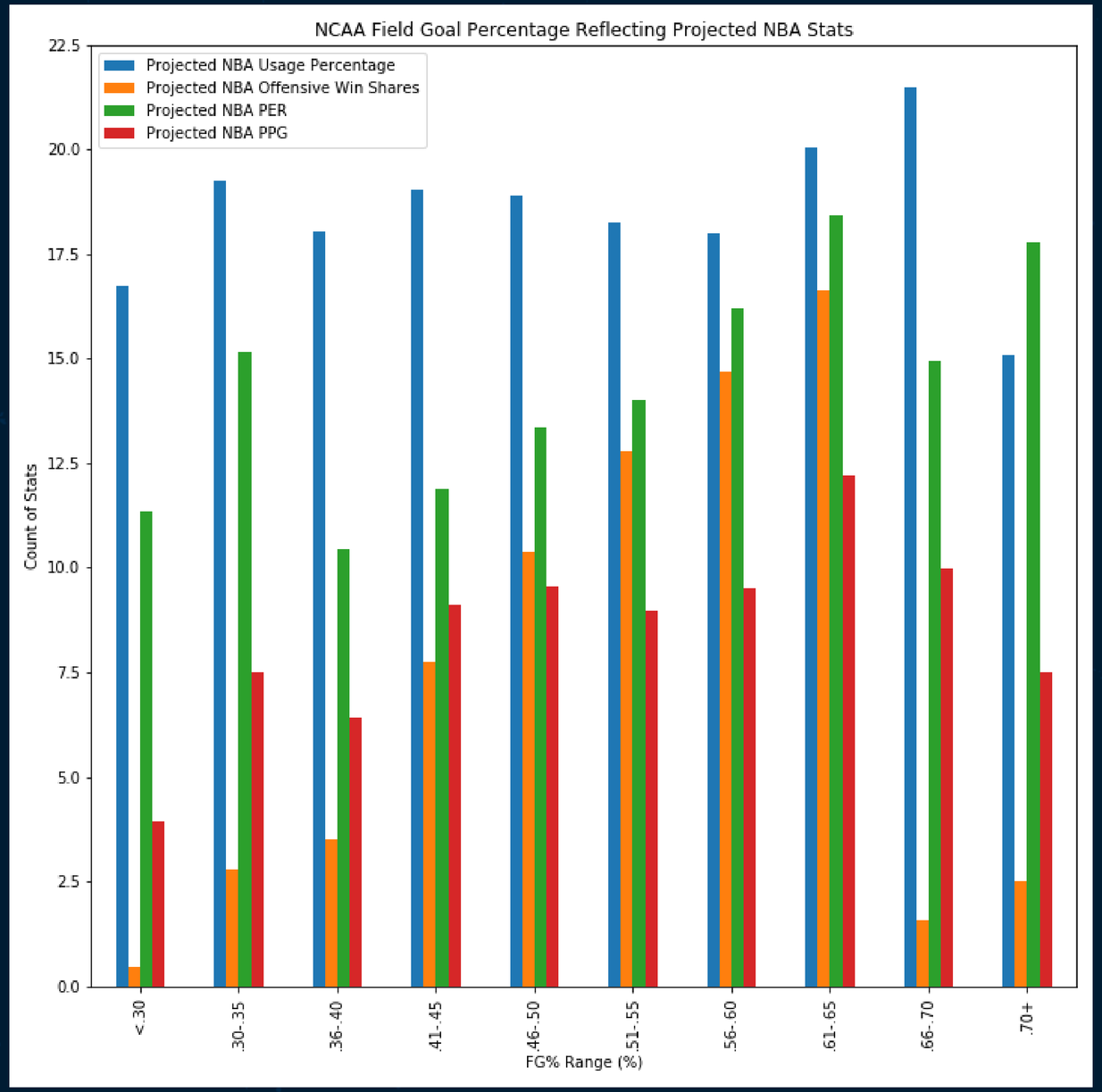
PER & OFFENSIVE WIN SHARES

Observed general trends in usage %, offensive win shares, PER, and PPG

02

USAGE % AND PPG

Usage Percentage and Points Per Game don't vary much due to role players and volume shooters



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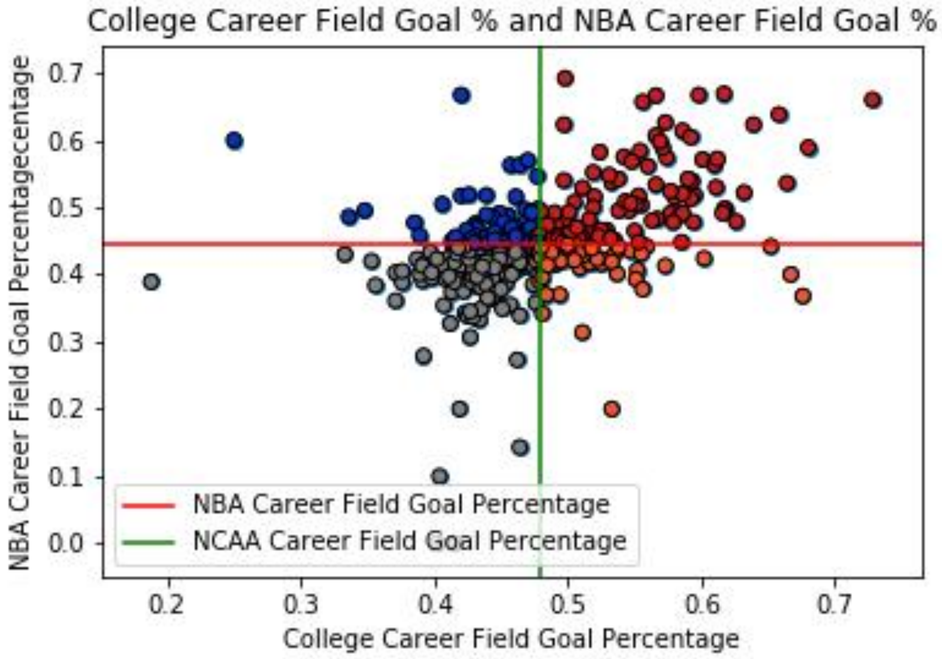
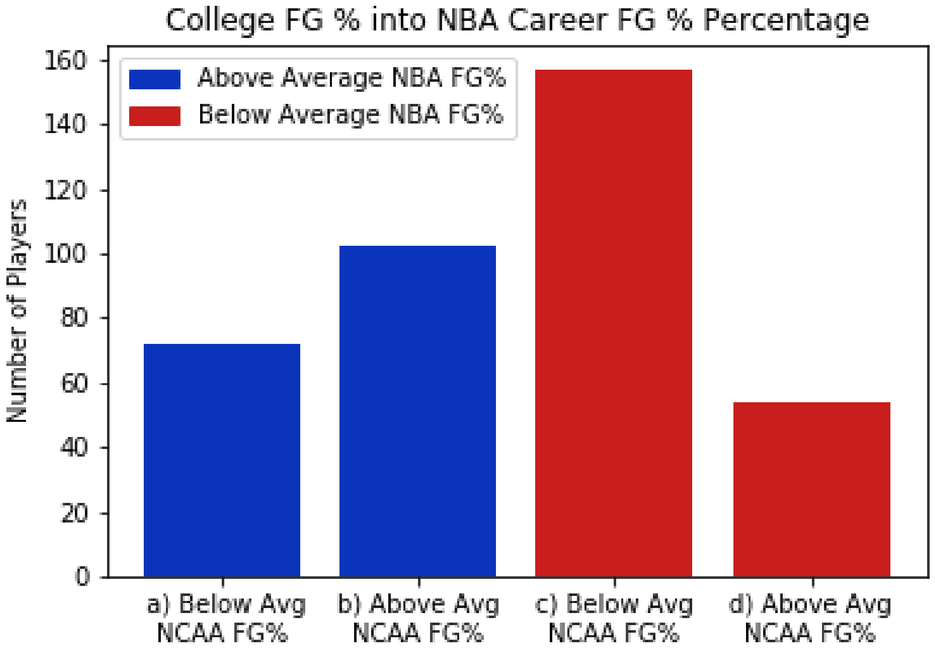
NCAA FG% v NBA FG%

01 **AVG NCAA FG%**
Average Field Goal Percentage ~48%

02 **AVG NBA FG%**
Average Field Goal Percentage ~45%

03 **BAR PLOT – SCORING IMPACT**
Very few players shot below average in NBA if they first shot above average in NCAA





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SEASONS PLAYED IN NCAA

- Does time spent in college determine performance in the NBA?
- Are “1-and-done” players more successful?

TEXAS FRESHMAN: KEVIN DURANT

1 **GAMES PLAYED: 35**

2 **POINTS PER GAME: 25.8**

3 **USAGE PERCENTAGE: 33.2**

4 **REBOUNDS PER GAME: 11.1**

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NCAA GAMES PLAYED v NBA PER

01

AVG NBA PER

Average NBA Player Efficiency Rating ~13.3

02

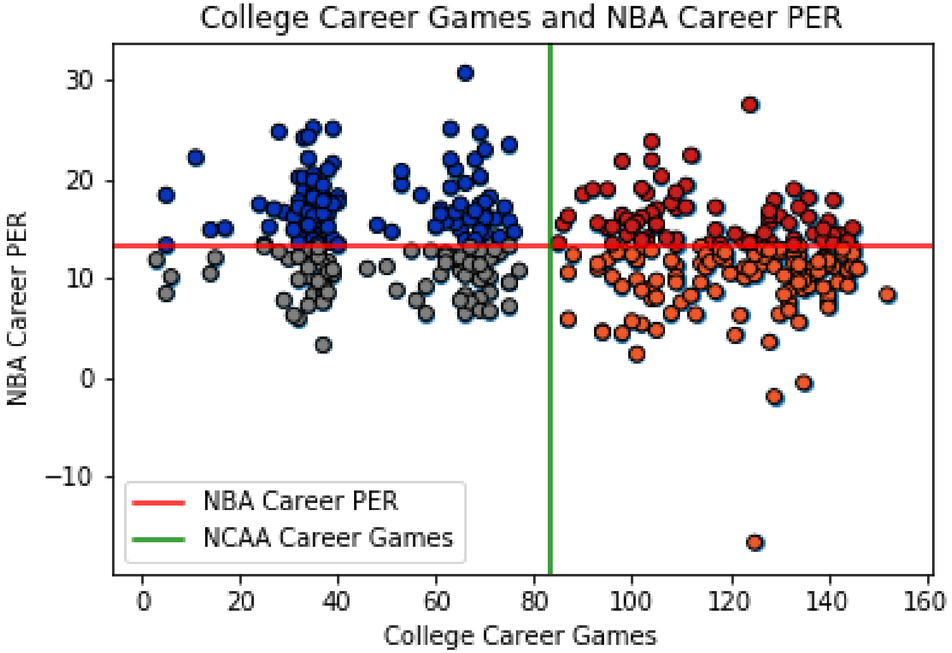
LESS IS MORE

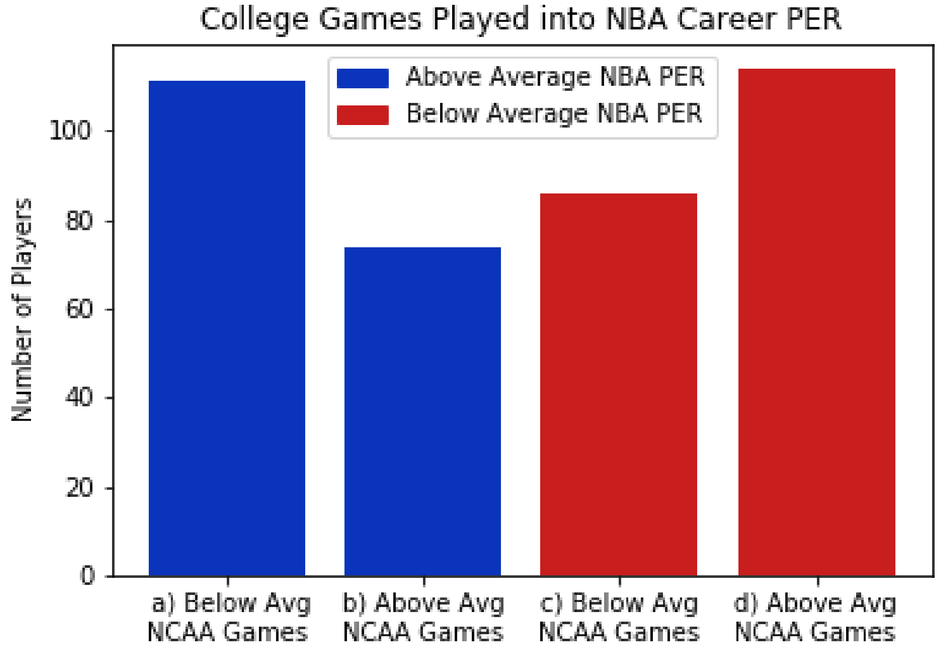
Trend shows fewer games played in NCAA for above average NBA players

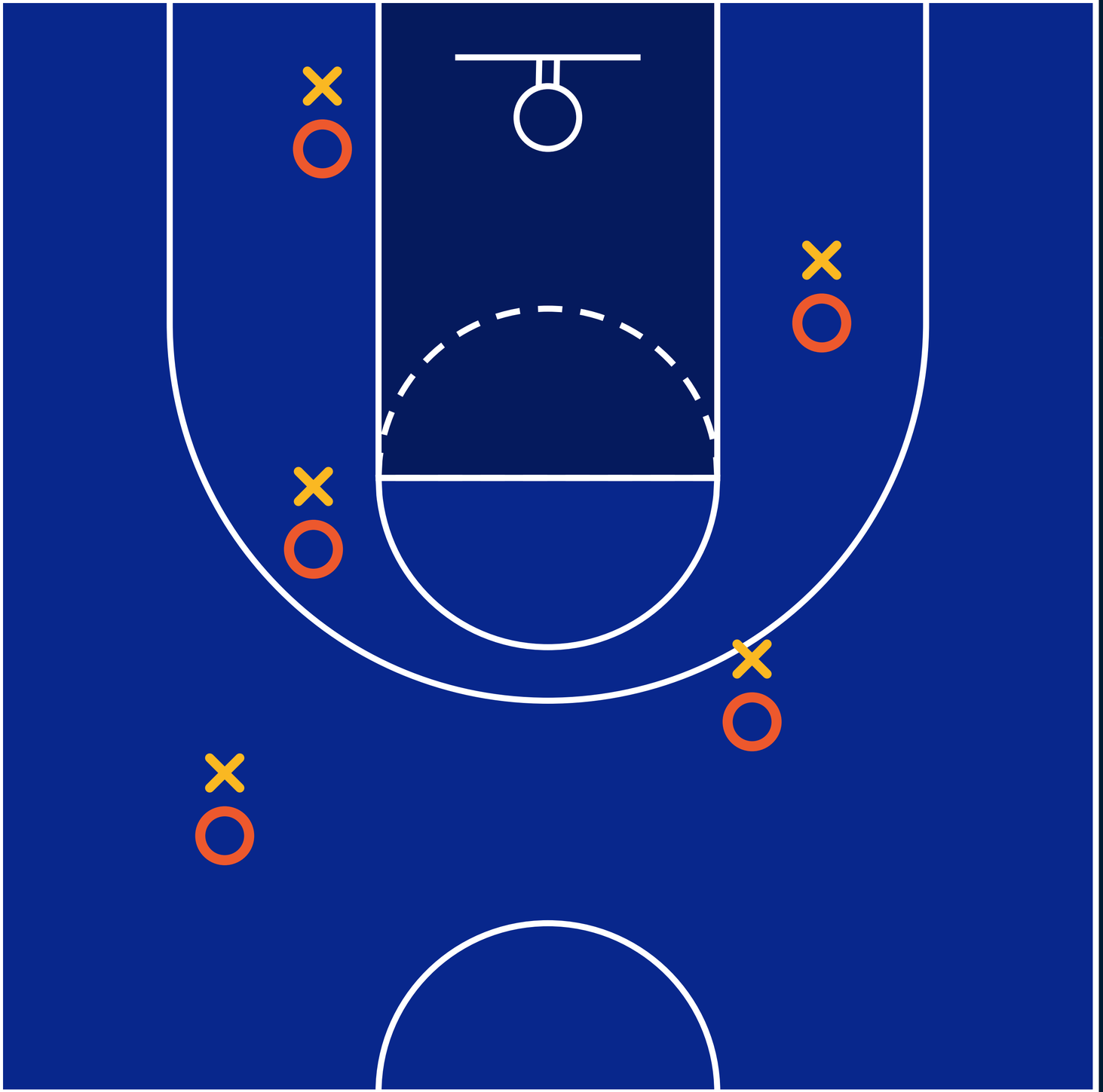
03

PER IMPACT

Playing longer in NCAA could suggest lower PER at NBA level







GROUP 5

SUMMARIZE FINDINGS

01 PLAYER PROFILE

- Height and Weight positively affect rebounds and blocks but negatively affect assists
- Steals and Turnovers seem to show similar trends across all profiles

02 PERFORMANCE METRICS

- FG% in the NCAA positively affects Offensive Win Shares and PER in the NBA but doesn’t exhibit any trends in Usage Percentage and PPG
- FG% also remains consistent or improves from NCAA to NBA

03 TIME PLAYED IN NCAA

- Number of players with below average time spent in college have significantly higher PER’s than those who stayed
- Those who stayed in college had significantly lower than average PER’s.

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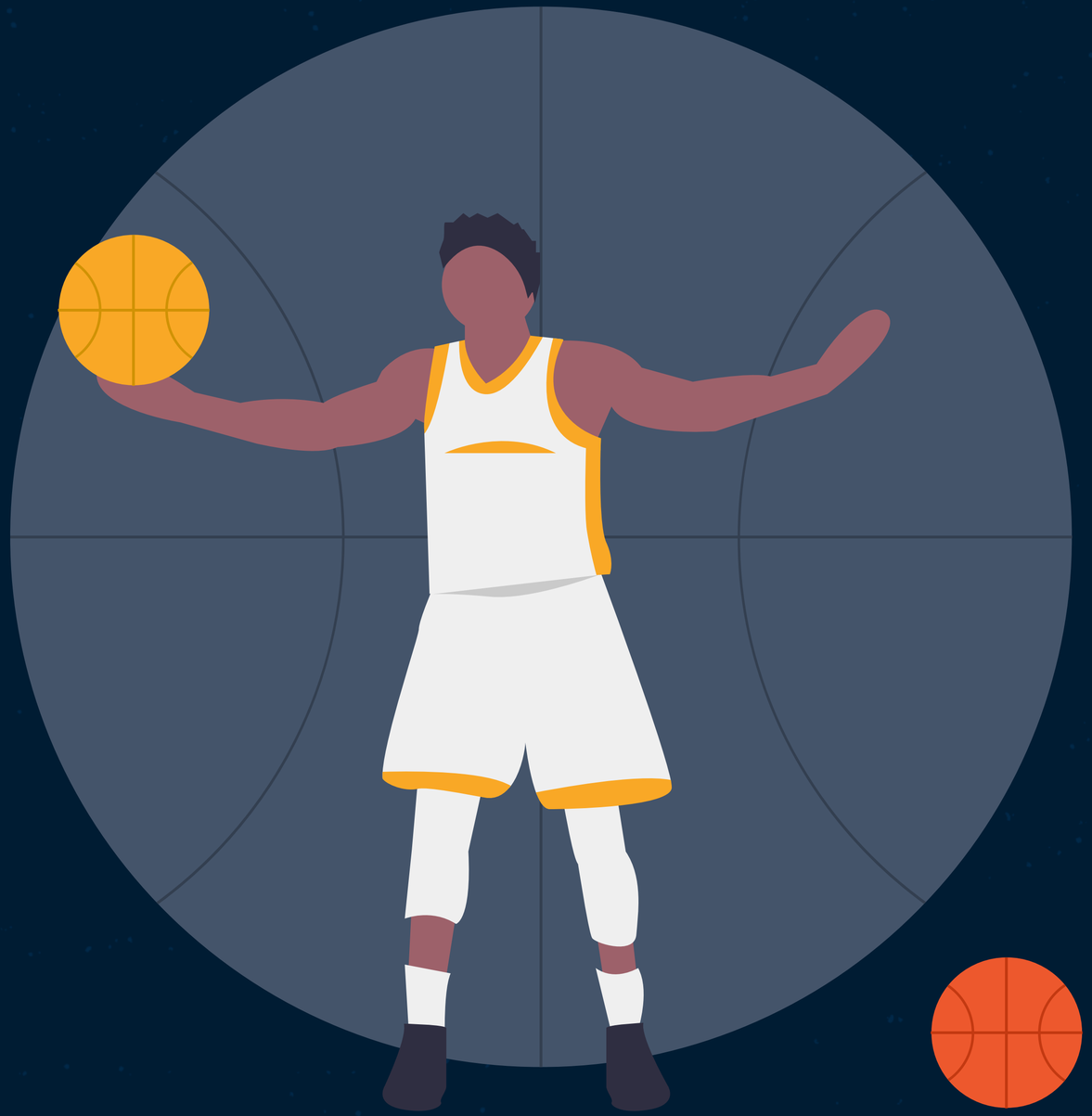
POST GAME

- Nearly 28 columns of data to sift through, hard to pinpoint which exact trends and stories to tell

- If given an additional time, our team would have liked to examine early 2000's NCAA & NBA data. Comparing the differences in two different decades would have possibly shown aspects of the game athletes focused more on and how it has impacted the game today.



Q&A

THANK YOU