

NBA Data Analysis Report (2009-2017)

TASK 1

SUBMITTED BY – ITI GUPTA

Table of Content

1. Introduction
2. Data Overview
3. Data Visuals
4. Data Analysis
 - Trends and Patterns in player performance
 - Correlation Analysis
 - Players count per year
 - Player average in each ability per year
5. Key Insights
6. Recommendations
7. Conclusion

INTRODUCTION

This report presents an analysis of NBA Draft Combine data for trend identification and the detection of patterns in player measurements and assessment of how correlations between those measurements and player performance look. The dataset contained measurements and performance metrics of players across several draft years, thus allowing insights into how their physical attributes might drive or correlate with their on-court performance.

DATA OVERVIEW

The dataset contains the following columns:

- **Player** - Name of the player.
- **Year** - Year of the draft.
- **Draft pick** - Player's draft pick number.
- **Height (No Shoes), Height (With Shoes)** - Height measurements.
- **Wingspan** - Arm span.
- **Standing reach** - Reach when standing.
- **Vertical (Max), Vertical (Max Reach)** - Maximum vertical leap and reach.
- **Vertical (No Step), Vertical (No Step Reach)** - Vertical leap and reach without a step.

- **Weight** - Player's weight.
- **Body Fat** - Body fat percentage.
- **Hand (Length), Hand (Width)** - Hand measurements.
- **Bench** - Number of bench press repetitions.
- **Agility** - Time for an agility drill.
- **Sprint** - Time for a sprint drill.

DATA VISUALS

- **Card** – Used in the Dashboard for showing name of the person having maximum ability (Sprint Drill, Bench Press, Vertical (Max), Wingspan, Agility Drill).
- **Table** – Used in the Dashboard for showing Height, Weight, Draft Pic and Bench press in table format.
- **Scatter Plot** – Used in the dashboard to show the trend and pattern in player performance w.r.t average Height i.e.; Wingspan and sprint trend w.r.t Player's height.
- **Gauge** – Used in the Dashboard to calculate the Correlation coefficient between average of an ability and average Weight i.e.; Correlation between-
 - Average Weight & Average Agility
 - Average Weight & Average Vertical (Max)
 - Average Weight & Average Sprint

- **Slicer** – Used in the Dashboard if user want to filter the range of the particular column. In our Dashboard we have 2 slicers namely Height and Weight.

DATA ANALYSIS

Trends & Patterns in Player Performance

- **Height and Wingspan Trends:** Scatter plot shows a steady increase in average Height and Wingspan of the players over the years i.e.; Height and Wingspan are positively correlated. Taller the players, higher the chance of having longer Wingspan.
- **Height and Sprint Trends:** Scatter plot shows a slight decrease in average height and sprint of the player over the year i.e; Height and Sprint are negatively correlated. As the trend line is somewhat straight so it can be the case that taller person has more sprint drill but mainly shorter person will have more sprint drill.

Correlation Analysis

- **Weight and Agility:** Gauge shows that the correlation coefficient between Weight and Agility is 0.36 i.e.; Weight and

Agility have positive correlation which means with the increase of weight the agility drill will increase.

- **Weight and Vertical (Max):** Gauge shows that the correlation coefficient between Weight and Vertical (Max) is 0.02 i.e.; Weight and Vertical (Max) is slightly positive which means that heavier person might have greater Vertical (Max) but it's not always the case.
- **Weight and Sprint:** Gauge shows that the correlation coefficient between Weight and Sprint is 0.35 i.e.; Weight and Agility have positive correlation which means with the increase of Weight the Sprint drill will increase.

Players count per year

- 2009 – 50 Players
- 2010 – 48 Players
- 2011 – 53 Players
- 2012 – 61 Players
- 2013 – 62 Players
- 2014 – 53 Players
- 2015 – 63 Players
- 2016 – 61 Players

- 2017 – 60 Players

Player average in each ability per year

Year	Standing Reach	Draft Pic	Bench	Vertical (Max)	Wingspan	Sprint	Agility
2009	103.14	22	11	33.00	81.42	3.12	10.71
2010	105.59	22	9	28.95	83.67	2.91	10.16
2011	103.14	23	10	34.79	82.01	3.23	10.62
2012	102.23	22	9	32.37	82.67	3.03	10.05
2013	103.10	20	8	29.77	82.00	2.73	9.28
2014	102.31	23	0	32.08	82.15	2.86	10.01
2015	103.72	18	6	26.94	82.79	2.52	8.51
2016	102.49	22	0	28.68	82.89	2.60	9.06
2017	104.18	19	0	29.48	82.86	2.74	9.61

KEY INSIGHTS

- **Max Sprint-**

Jared Sullinger has maximum time for Sprint drill i.e.; 3.81

- **Bench Press-**

Luke Harangody has maximum Bench press i.e.; 23 bench press

- **Vertical (Max)-**

Hamidou Diallo has maximum Vertical (leap and reach) i.e.; 44.5

- **Wingspan-**

Rudy Gobert has maximum Wingspan Arm span) i.e.; 92.50

- **Agility-**

Tiny Gallon has maximum time for Agility drill i.e.; 13.44

RECOMMENDATIONS

- **Focus on Fitness-** Emphasize fitness levels to improve vertical leap and sprint performance.
- **Athleticism Metrics-** Consider vertical leap and agility scores when evaluating prospects.
- **Utilize Height and Wingspan Data:** Leverage height and wingspan measurements to identify players with potentially advantageous physical attributes

CONCLUSION

This paper presents an analysis of NBA Draft Combine data for trend identification and the detection of patterns in player measurements and assessment of how correlations between those measurements and player performance look. The dataset contained measurements and performance metrics of players across several draft years, thus

allowing insights into how their physical attributes might drive or correlate with their on-court performance.