NBA All Star Performance On Back To Backs

Motivation For Project

- NBA players have complained for a long time now about back to backs occurring in the NBA, specifically with the lack of rest time between back to backs.

- We wanted to see if NBA players do play worse on the second night of back to backs, and if this is the case, which age groups specifically

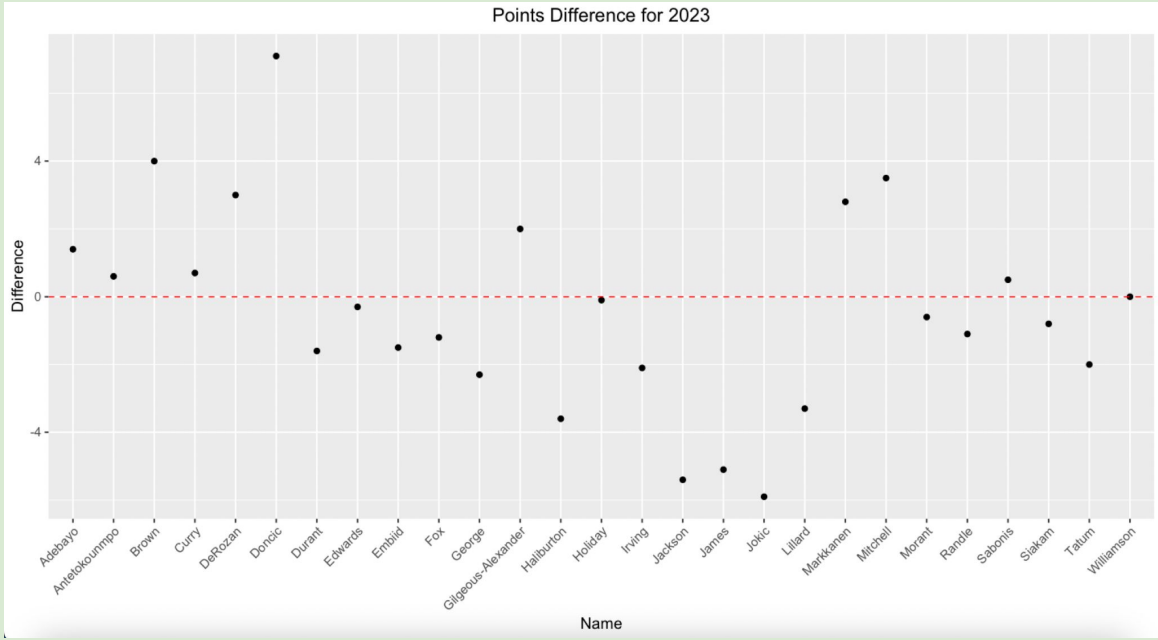
Specifications For Project

- Went into depth for 2023 all stars
- Used the last five NBA seasons holistically
- Used only second night of back to back
- Compared this to their season average

Part 1: Points

22-23 Points Scatterplot:

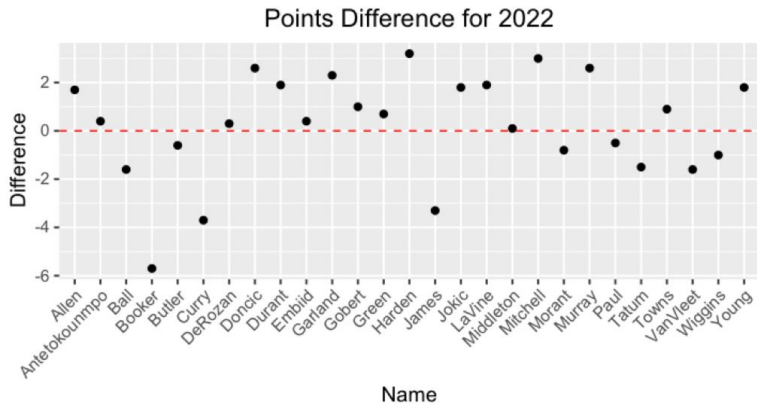
- Average Points - 2nd Night Of Back To Back Points For 2023 All Stars
- Average PPG Difference Was -0.417, showing that on average, the average 30 PPG scorer in the NBA put up 30.4 PPG on the second night of a B2B in the 22-23 season.

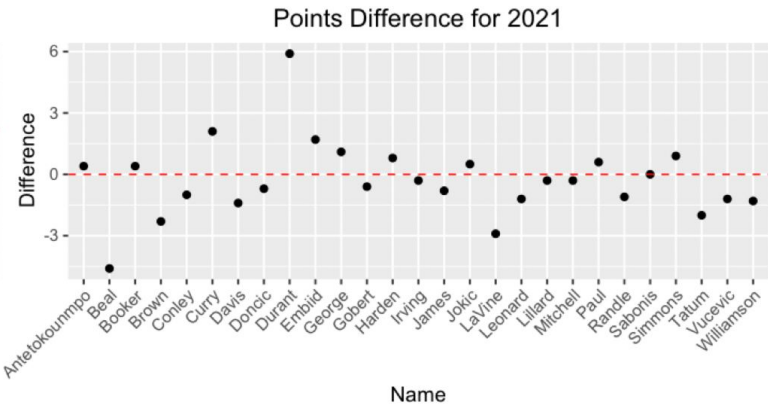


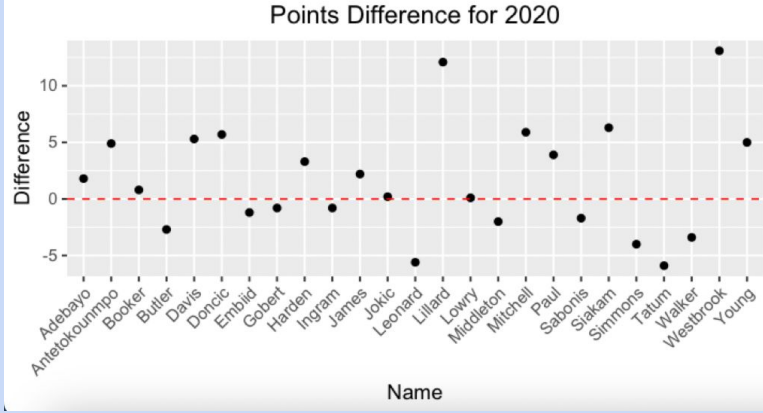
Next: Age Groups

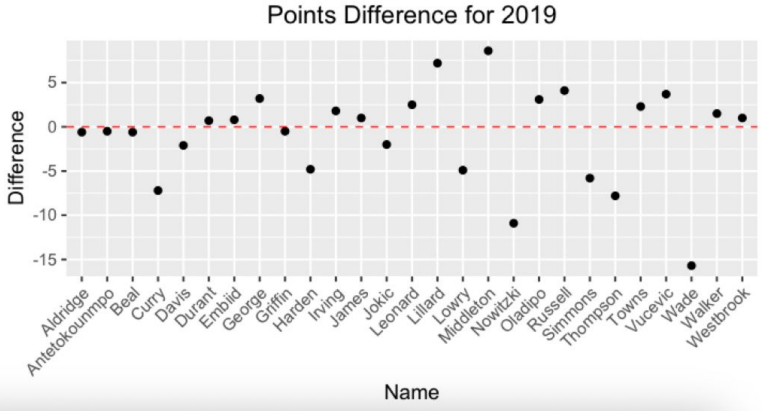
Age Group	Points Difference
21-26	0.58
27-32	-1.8
33+	-0.8

Holistic Review Of Points





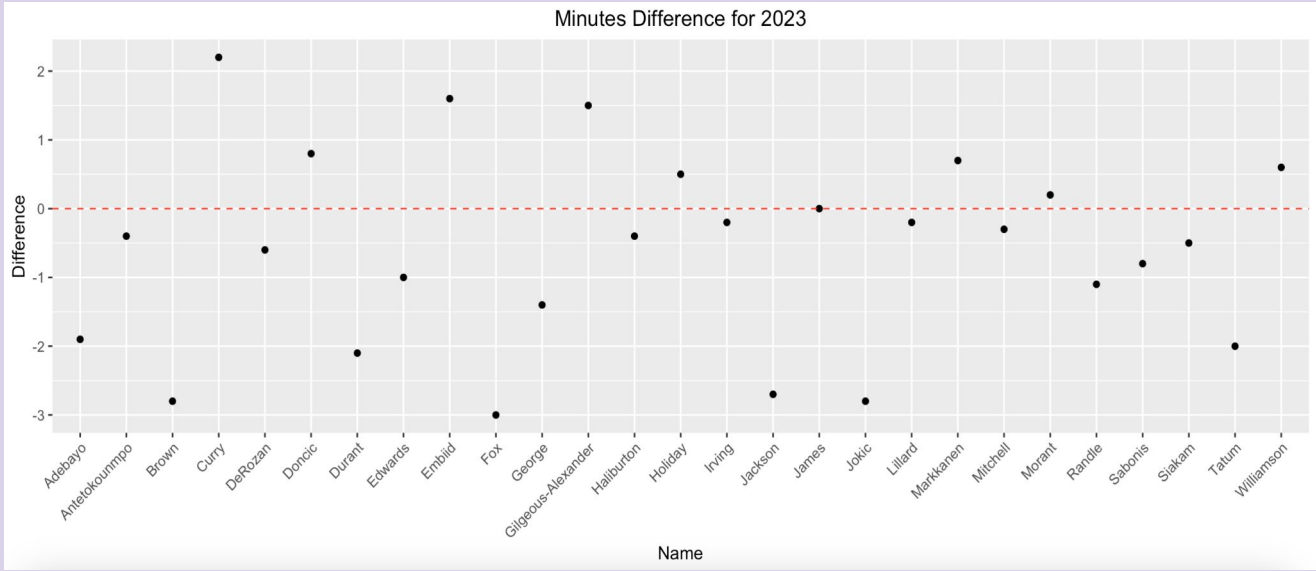




Part 2: Minutes

Second Scatterplot:

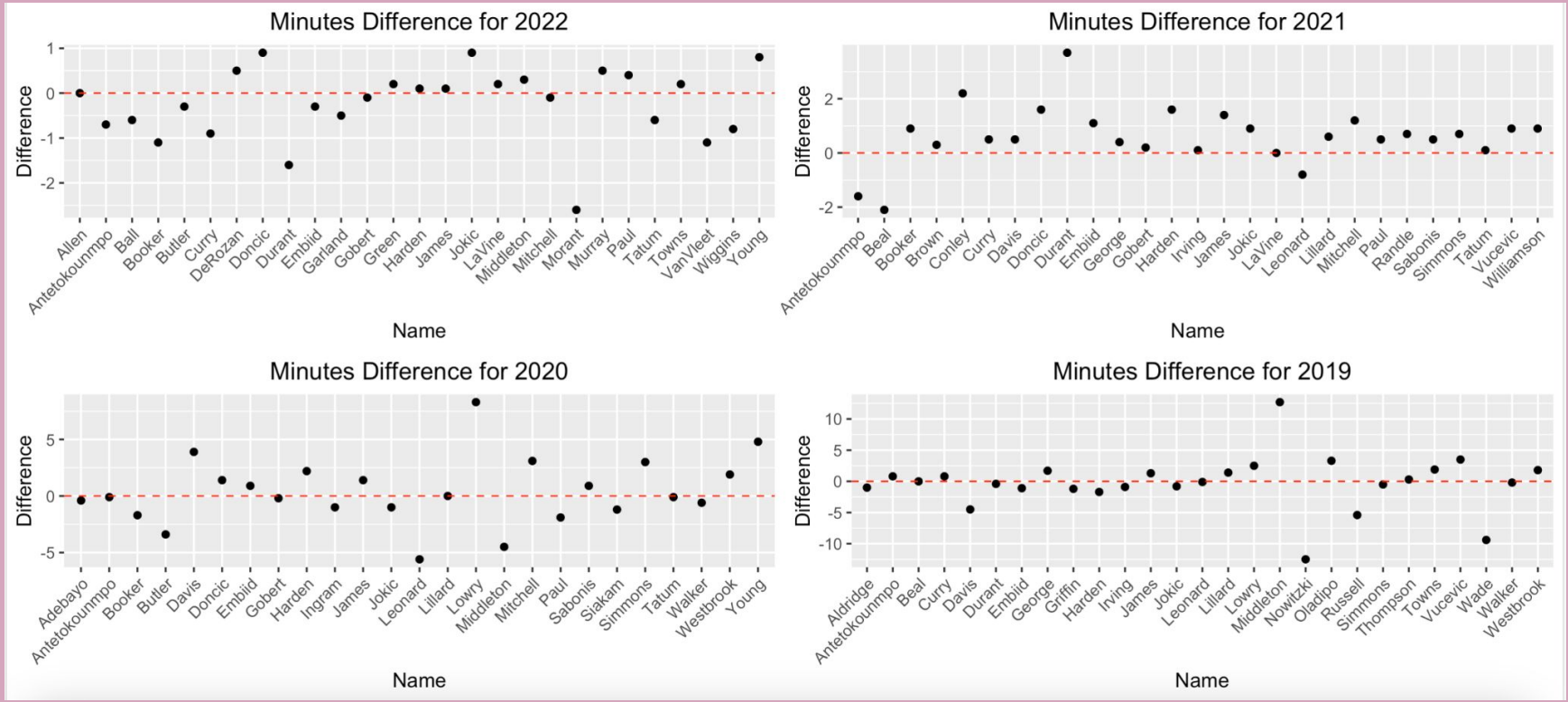
- Average Minutes - 2nd Night Of Back To Back Minutes For 2023 All Stars
- Average MPG difference was -0.63, implying that an all star that usually plays 36 minutes plays 36.6 minutes on average



Next: Age Groups

Age Group	Minute Difference
21-26	-0.793
27-32	-0.5
33+	-0.124

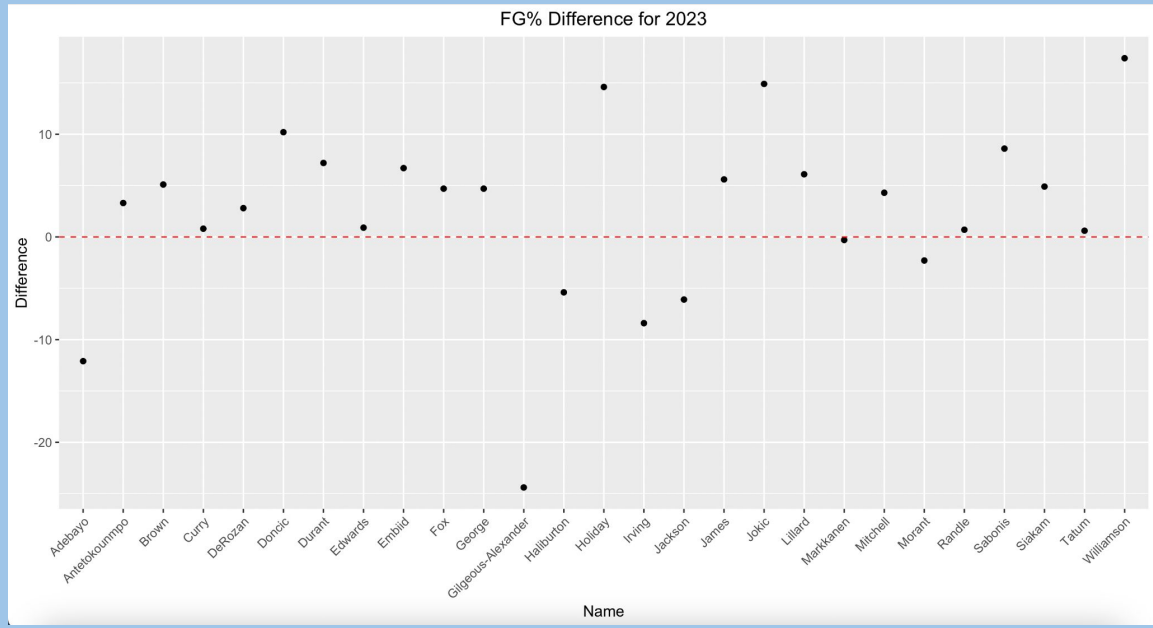
Holistic Review For Minutes



Part 3: FG%

Third Scatterplot

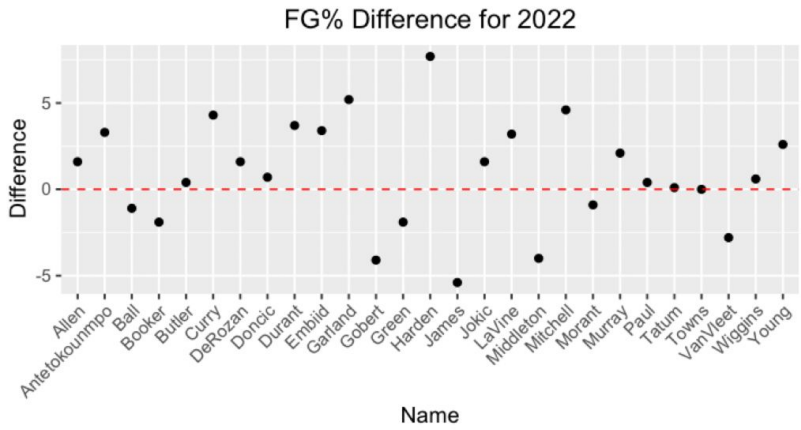
- Average FG% - 2nd Night Of Back To Back Minutes For 2023 All Stars
- Average FG% difference was 2.4, implying that an All Star who shoots 50% on average in the season shot 47.6% on 2nd night of B2B

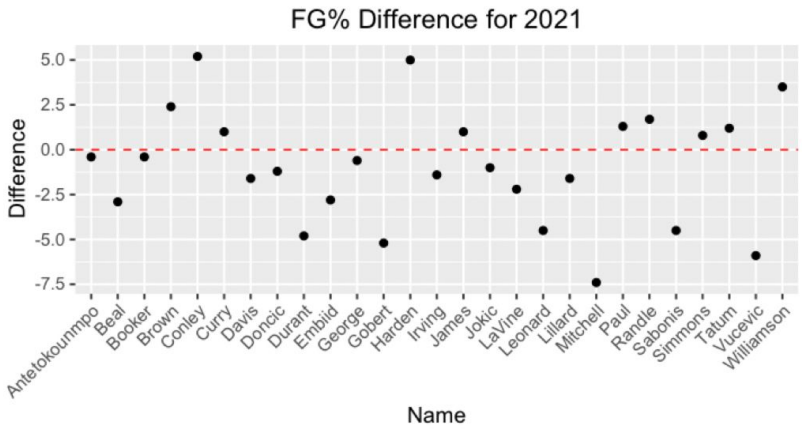


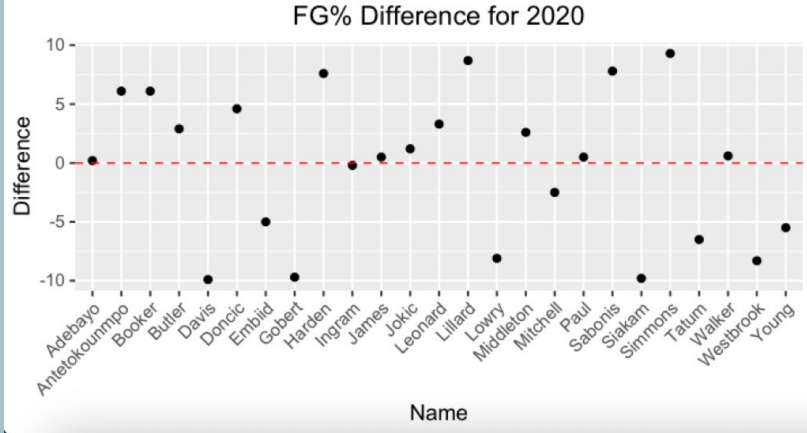
Next: Age Groups

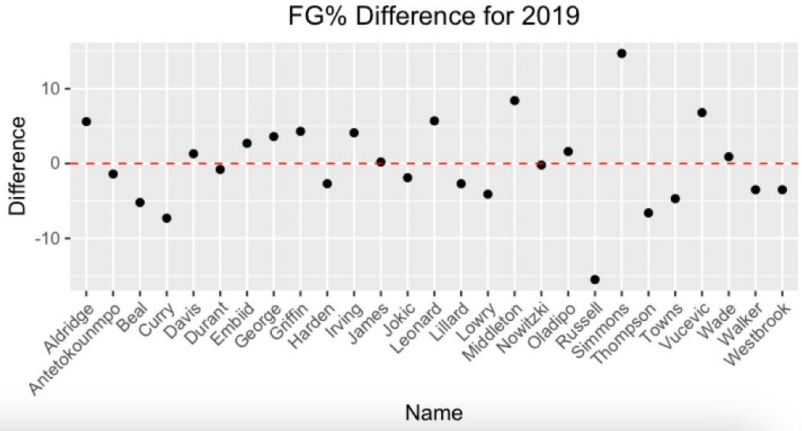
Age Group	FG% Difference
21-26	0.0857
27-32	5.28
33+	4.1

Plots for 2019-2022









Part 4: Hypothesis Testing

Points, Minutes, and FG% for all Years

- Two-sample t-test for each statistic

Statistic	**t**	**p-value**
Points	-0.04	0.97
Minutes	-0.12	0.90
FG%	0.13	0.90

Conclusions

Takeaways

Part 1 Points: Not that surprised since players relatively put up same PPG

Part 2 Minutes: Not surprising since more reliable players played more/less reliable less minutes

Part 3 FG%: Not surprising since 2.5% drop off is reasonable considering the less rest time

Hypothesis Testing: None of the p-values were significant, so it is hard to know whether players play better or worse on back to backs

Issues and Next Steps

Issues: Small data set, not many samples for each player in a given year

Potential Next Steps:

- Use data from more years
- Explore other statistics
- Examine travel distance between cities on a back-to-back (is more traveling associated with worse play)
- Split back to backs based on altitude (ex: do players in Denver perform worse)

Thank You!