

The 2022-23 Los Angeles Lakers Post-All-Star Break

What were the most important factors for the Lakers late success in the 2022-2023 NBA Regular Season?

At the beginning of the NBA 2022-2023 season, the Los Angeles Lakers seemed like they were destined for complete and utter failure. I mean they started the season 2-10 (2 Wins/10 Losses), so who could blame the critiques this team faced. The Lakers took fans on quite the rollercoaster, never seeming to get their record to be at or above .500 (Total Wins \geq Total Losses). Then came the NBA Trade Deadline which was on Feb. 9, 2023, marking the final opportunity for teams to make changes to their roster by trading players with one another. As it nears, front offices are busy trying to ensure they're improving their rosters, so they have a fighting chance to make the playoffs. The Lakers did just that, as they made some big changes that filled fans with the hope and excitement that was once lost. Aside from the trade deadline, there is also the All-Star Break (ASB) in mid-February where teams have no games, besides the players who were selected on the All-Star Team. After this break, the Lakers were absolutely rolling and had an insane late-season turnaround, ending with an above .500 record and a great playoff run. Witnessing a team start the season 2-10 and reach the Western Conference Finals was both exciting and fascinating, making the 2022-23 Lakers post-ASB quite the conversation starter. This project delves into the Lakers' regular season statistics before and after the ASB, with a focus on identifying the factors that propelled them to success.

Data

For the first dataset, I collected the Lakers 2022-23 information for each game, which includes the Date, Home Team, Visitor Team, and the score for the Home/Visitor team. I used the balldontlie API (<https://www.balldontlie.io/home.html#introduction>) where I extracted the data using the requests library in python, wrote a JSON file, and then finally cleaned it up and converted it to a csv file called 'clean_lakers_games.csv'.

For the second dataset, I collected the Lakers 2022-23 game logs, which includes the Date, whether they won or lost the game, and the stats of the game like field-goal percentage, rebounds, blocks, etc. I used the nba_api library in python that I found from (https://github.com/swar/nba_api/tree/master/docs/nba_api/stats/endpoints), where I used their endpoints and functions to extract the data, clean it up, and finally convert it to a csv file called 'clean_lakers_stats.csv'. I also cleaned, extracted, and renamed certain columns in each dataset so that I can merge them together to get a better/full scope of all the game information and stats for analysis.

My original plan was to compare last season to this current Laker season, but they have not played enough games this season to do that. Some challenges I faced with the data was just trying to figure out how exactly the balldontlie API and NBA API library worked. It was hard because implementing the parameters for balldontlie was not as clearcut as the ones we practiced in previous labs. And for the NBA API, there was a lot of different endpoints to sift from on the GitHub page, so it was a matter of trying to pick the correct one and also learning how to implement the parameters and functions. It took a lot of extensive reading and googling to get what I needed.

Analysis & Visualizations

Full Season Performance

First, I took a look at all 82 games to see their overall performance. I looked at the total count of the stats for their season.

	Stat	Total	Description
0	BLK	378.0	Blocks
1	AST	2072.0	Assists
2	REB	3748.0	Rebounds
3	OREB	818.0	Offensive Rebounds
4	DREB	2930.0	Defensive Rebounds
5	TOV	1154.0	Turnovers
6	STL	526.0	Steals
7	PTS	9608.0	Points
8	FGM	3516.0	Field Goals Made
9	FG3M	885.0	3-Point Field Goals Made
10	FTM	1691.0	Free Throws Made
11	PF	1466.0	Personal Fouls
12	PA	9561.0	Points Allowed
13	W	43.0	Wins
14	L	39.0	Losses

I then looked at the mean of their shooting percentages and calculated their win percentage. Note: FG% is how well they shot both 3 and 2 pointers.

	Stat	Mean	Description
0	FG%	48.3	Field Goal Percentage
1	FG3%	34.8	3-Point Field Goal Percentage
2	FT%	77.3	Free Throw Percentage
3	W%	52.4	Win Percentage

We see that they finished their season 43-39 with a win percentage of 52.4, which was history in the making as this Lakers team only won 16.7% of their first 12 games. Another key take away I got from this is the vast difference in Defensive Rebounds (2930) versus Offensive Rebounds (818). This is due to their positioning on defense, as they are positioned inside the key and closer to the basket, whereas on offense, they are more spread out. Thus, looking at OREB and DREB rather than rebounds as a whole is important to consider when analyzing the team.

Before and After All-Star Break Records

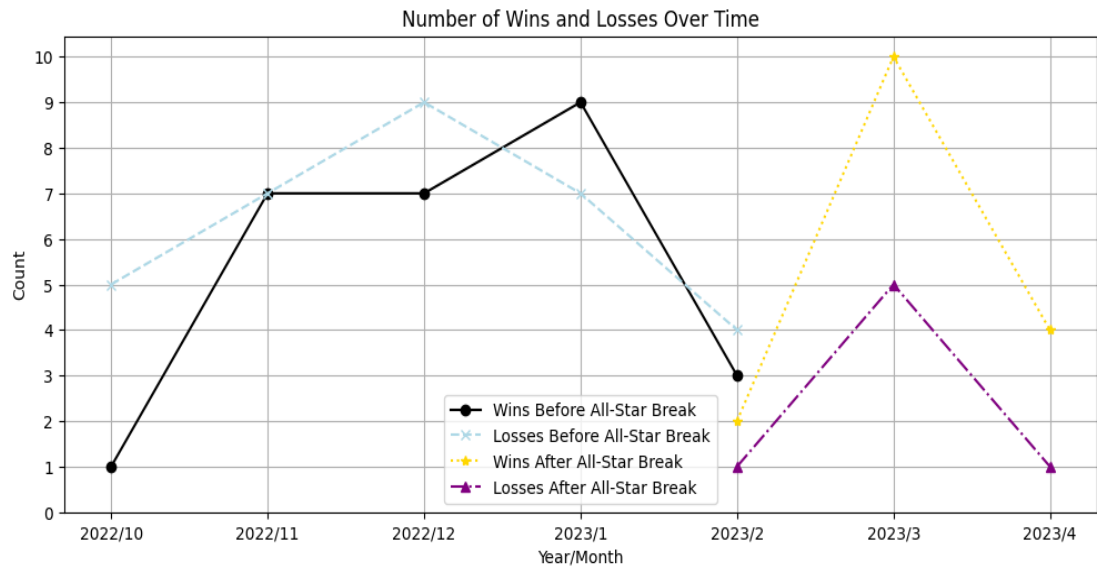
I then calculated their record and win percentage *before* the All-Star Break, with their last game being on Feb 15, 2023. The Lakers played 59 games before the ASB and went 27-32 with a 45.8-win percentage, which is notably still below .500 and they were still out of playoff contention.

	Stat	Total
0	Games Played	59.0
1	Wins	27.0
2	Losses	32.0
3	Win Percentage	45.8

I then calculated their record *after* the All-Star Break, which is when things started to shift for this Lakers team and suddenly they were playoff contenders and a team to watch out for. There were only 23 games left, where they went 16-7 with a 69.6-win percentage. This got them to the Play-In tournament to battle for the 7th seed of the playoffs. Spoiler Alert: they won the play-in !

	Stat	Total
0	Games Played	23.0
1	Wins	16.0
2	Losses	7.0
3	Win Percentage	69.6

To help see the highs and lows of this team, I created 4 time series chart that displayed the number of wins and losses by month for wins and losses before ASB and Post-ASB.



Comparing Statistics for the First 23 Games and Post-All-Star Break

The Lakers before the ASB and the Lakers post-ASB are practically different teams, so I decided to look at the performance separately and compare. Since post-ASB Lakers only had 23 games, I looked at the first 23 games. Basically, how they started and ended the season.

Here are the total count for the stats of these games:

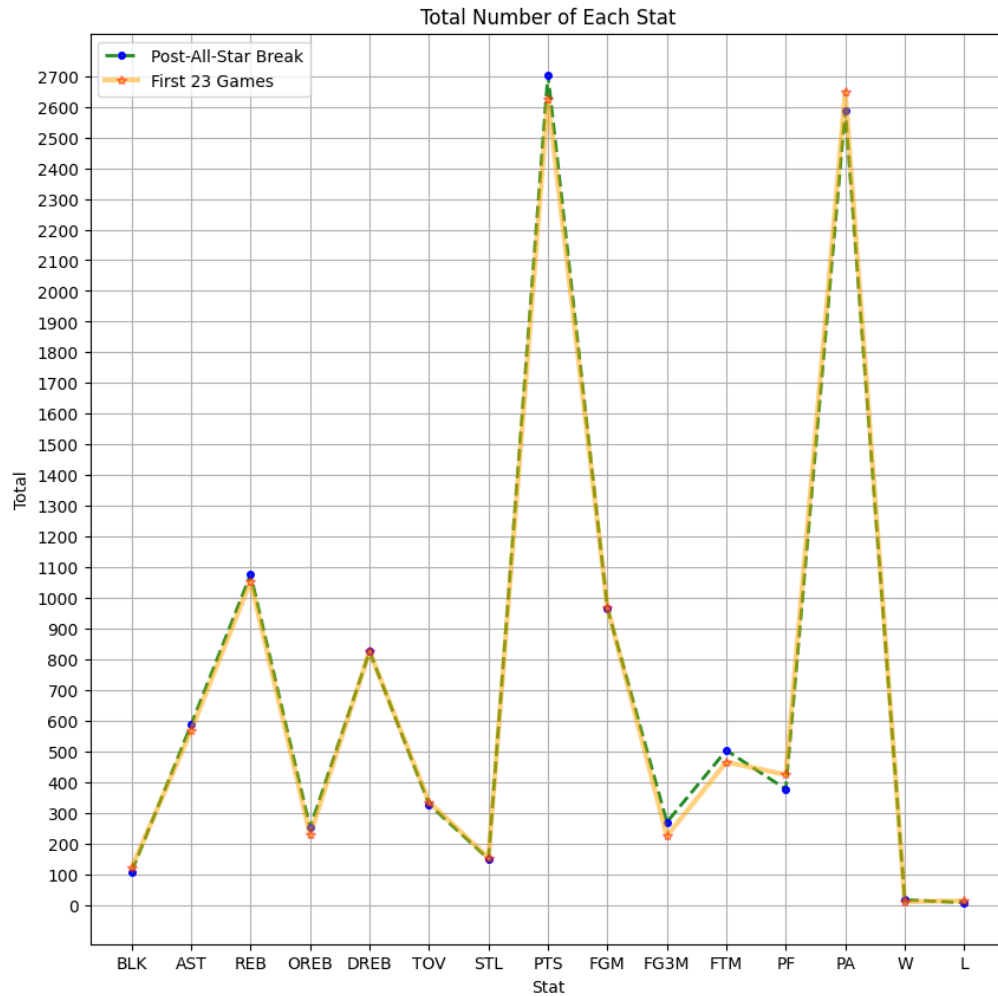
First 23

	Stat	Total	Description
0	BLK	120.0	Blocks
1	AST	568.0	Assists
2	REB	1054.0	Rebounds
3	OREB	228.0	Offensive Rebounds
4	DREB	826.0	Defensive Rebounds
5	TOV	335.0	Turnovers
6	STL	153.0	Steals
7	PTS	2627.0	Points
8	FGM	969.0	Field Goals Made
9	FG3M	224.0	3-Point Field Goals Made
10	FTM	465.0	Free Throws Made
11	PF	424.0	Personal Fouls
12	PA	2649.0	Points Allowed
13	W	10.0	Wins
14	L	13.0	Losses

Post-All-Star Break

	Stat	Total	Description
0	BLK	108.0	Blocks
1	AST	587.0	Assists
2	REB	1076.0	Rebounds
3	OREB	251.0	Offensive Rebounds
4	DREB	825.0	Defensive Rebounds
5	TOV	327.0	Turnovers
6	STL	149.0	Steals
7	PTS	2704.0	Points
8	FGM	966.0	Field Goals Made
9	FG3M	269.0	3-Point Field Goals Made
10	FTM	503.0	Free Throws Made
11	PF	377.0	Personal Fouls
12	PA	2589.0	Points Allowed
13	W	16.0	Wins
14	L	7.0	Losses

I created a line chart to better visualize and see how they compare to each other:



Some Observations:

- First 23 Lakers made 3 more baskets, but scored 77 less points and allowed 60 more opponent points than Post-ASB Lakers
- Post-ASB Lakers made 45 more 3-Pointers and 38 more free throws
- Post-ASB Lakers had 47 less fouls, which means less opportunities for opponents to score, as fouls can lead to free throws
- Post-ASB Lakers had 22 more rebounds, which means more opportunities to score

Here are the averages of their shooting and win percentages:

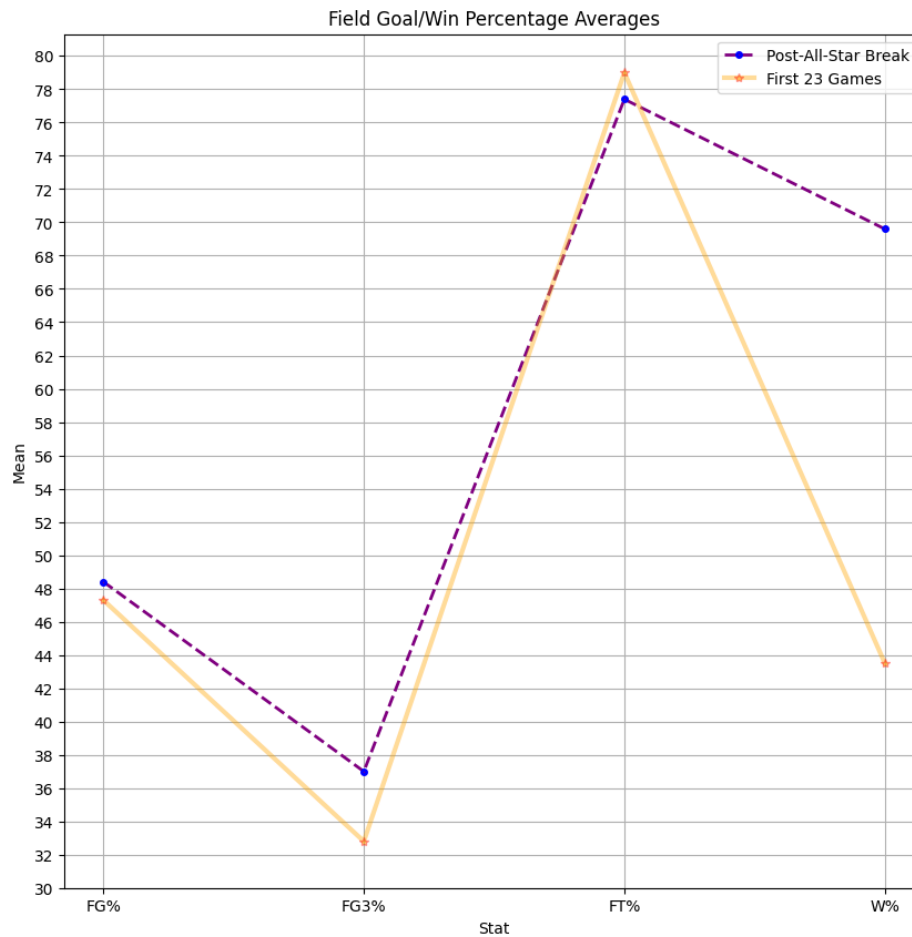
First 23

Stat	Mean	Description
0	FG%	47.3 Field Goal Percentage
1	FG3%	32.8 3-Point Field Goal Percentage
2	FT%	79.0 Free Throw Percentage
3	W%	43.5 Win Percentage

Post-All-Star Break

Stat	Mean	Description
0	FG%	48.4 Field Goal Percentage
1	FG3%	37.0 3-Point Field Goal Percentage
2	FT%	77.4 Free Throw Percentage
3	W%	69.6 Win Percentage

I created another line chart for the averages:



Lakers had a 10-13 record with a 43.5-win percentage in their first 23 games, which is clearly nothing compared to the post-ASB Lakers, who performed better in every category besides free throws by about 2%. Note: Post-ASB Lakers attempted more free throws, so this difference is not significant.

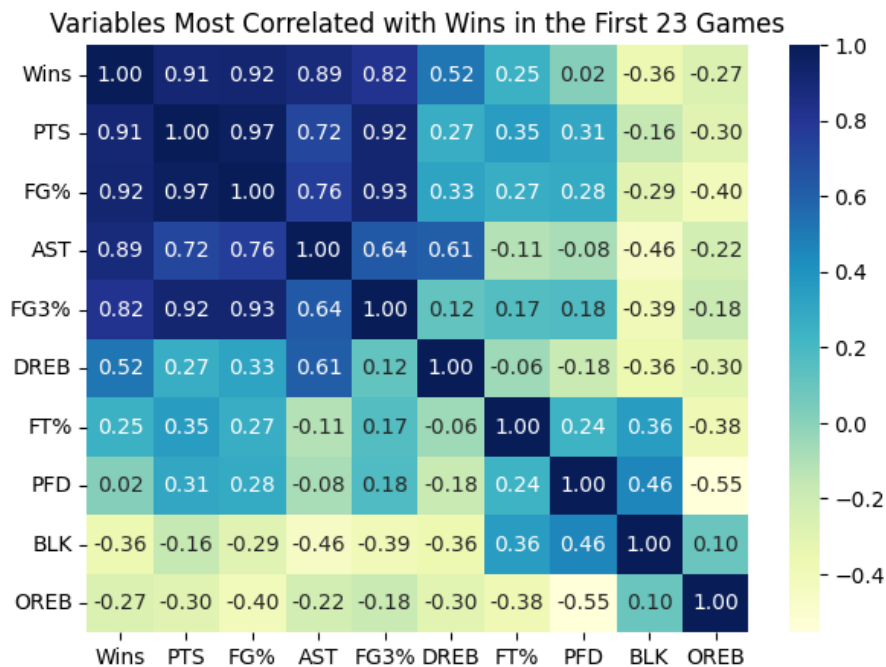
Correlation Between Variables for First 23 Games and Post-All-Star Break

I looked at the Pearson correlation between each variable to see how the results above relate. The coefficient ranges between +1 (positive correlation) and -1 (negative correlation). The closer the coefficient is to 1, the stronger the relationship. A coefficient close to 0 shows a weak relationship, while anything below 0 shows a negative relationship. While constructing my correlation matrix, I decided to drop variables that I think are already correlated or unnecessary. Most importantly, I will be diving into my question of what variables propelled the Lakers late in the season by finding the ones that are most correlated to Wins. Of course, it is important to remember that correlation does not cause causation.

First 23 Games:

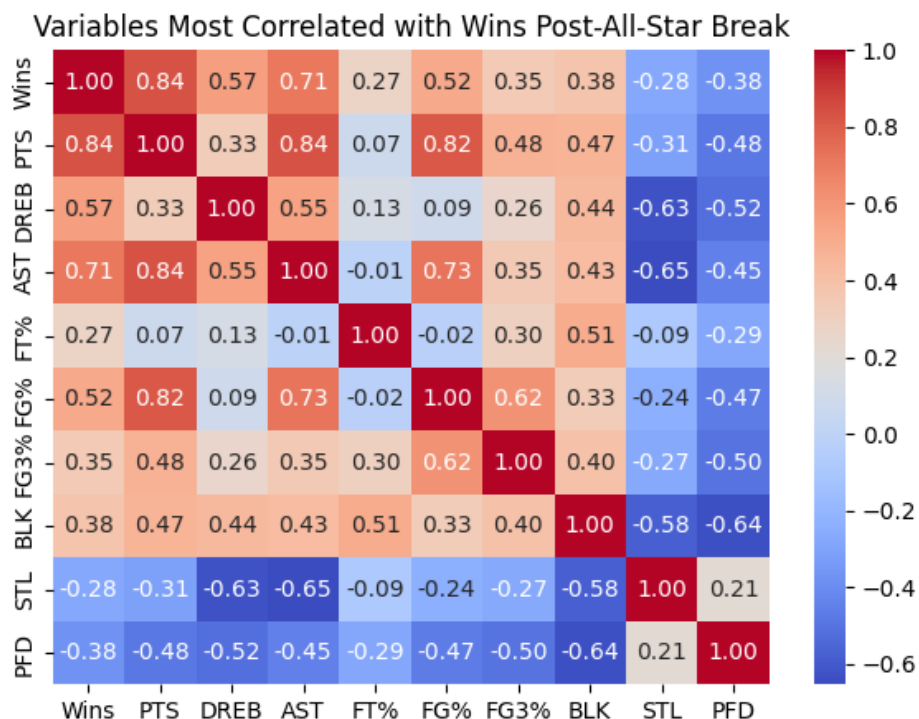
I created a heatmap for a better visualization of the variables that were the most impactful with Wins for the first 23 games. In order: Field-Goal Percentage, Points, Assists, 3-Point Field Goal Percentage, Defensive Rebounds, and Free Throw Percentage all had impact on their 10 wins.

We can see that Personal Fouls Drawn, Blocks, and Offensive Rebounds have or start to get a weak to no correlation



Post-All-Star Break:

Below is the heatmap for the variables that were the most impactful towards Wins post-ASB. In order: Points, Assists, Defensive Rebounds, Field Goal Percentage, Blocks, 3-Point Field Goal Percentage, and Free Throw Percentage had great impact on the Lakers success late in the season. We can also see that Personal Fouls Drawn and Steals have or start to get a weak to no correlation.



Observations:

- Post-ASB correlation for Wins had no coefficients less than 0, but there was in first 23 games
- Defensive rebounds for both had a positive correlation over 0.5 for both and offensive rebound had a negative correlation for first 23 games. This is noteworthy because of the total difference of defensive rebounds vs. offensive rebounds that was observed earlier, and now we can see their relationship with Wins
- Both had similar variables impact their Wins, but since the Lakers only won 10 games in their first 23 games compared to Post-ASB with 16 wins, the correlation strength is a bit different. For example, Field Goal Percentage, Blocks, 3-Point Field Goal Percentage, and Free Throw Percentage had stronger correlations for the first 23 games. My interpretation is that they had to have a very good shooting day in order to win those games due to everything else in their game lacking. Post-ASB Lakers had a lot going right for them, as they improved on all aspects in the game, leading to their success.

Conclusion and Impact

Although I found the variables that have a strong relationship with the Win column, there was so many factors that helped the Lakers turnaround their season. One being the Lakers front office for executing and making the right trade decisions and then the new players coming in and doing what the Lakers signed them for. From the Post-All-Star Break statistics, we can see how much they improved the team and made an impact on their success. It was shown on live TV and on paper, as the 16-7 post-All-Star Break record was the best in the Western Conference.

The NBA is very data-driven, and their decision making relies heavily on analytics. My findings are just one of the many different ways for teams to pinpoint their strengths and most importantly, their weaknesses. Coaches and teams are able to strategize and create game plans that play to their strengths and expose their opponents weaknesses as well. It also helps drive in-game decisions, as play-by-play stats are readily available for teams to see and use.

Future Work

If I had more time (and experience) to improve my project, I probably would implement more statistical techniques and machine learning models. I would have loved to look at the Lakers roster and their personal stats during the season and possibly measure the impact that they have on the game as well. Upon research, I saw and was fascinated by someone coding a half a basketball court for a shooting graph with all the places a player attempted a shot in a season. There are so many different directions that you can go with NBA or sports data in general, and I just hope I can get to that level of skill and understanding as a very passionate sports fan.