

SES10124

Advanced Performance Analysis In Football

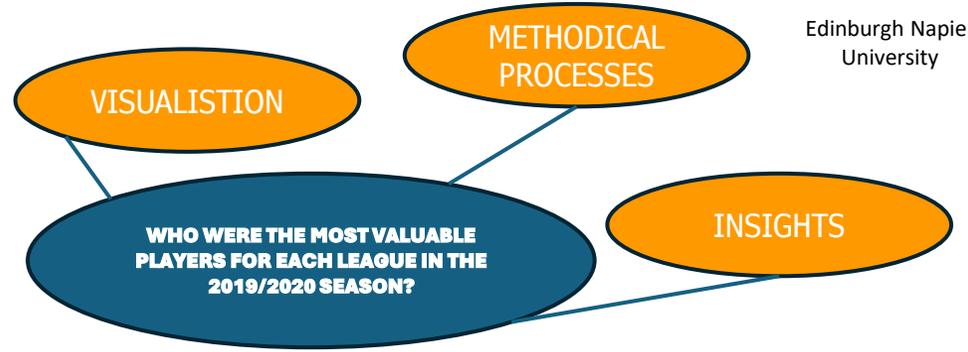
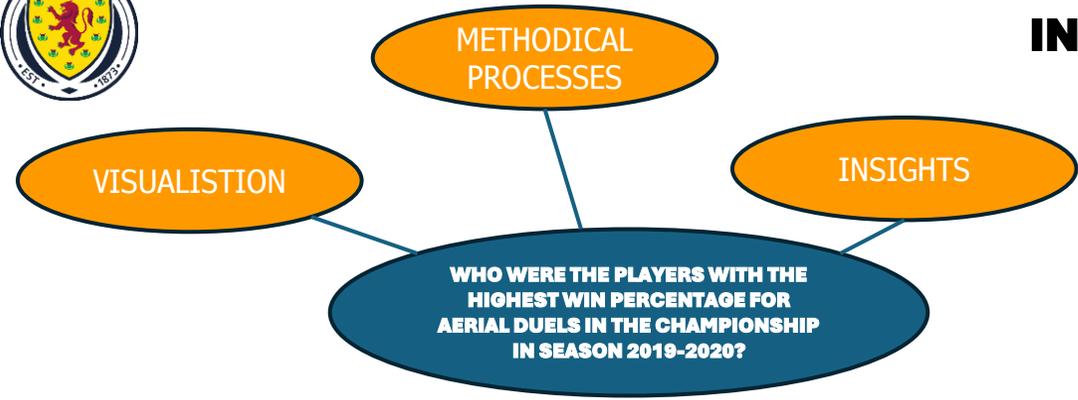
Assessment-1:
Data Analysis Report

Name: David Brownlie

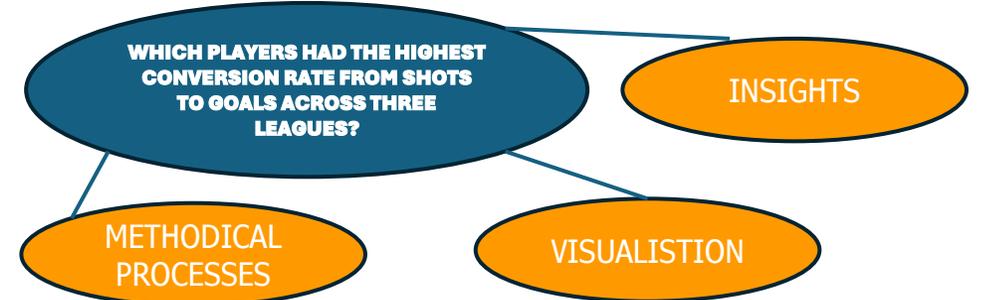




INTRODUCTION



**DATASET
2018/19 & 2019/20 SEASONS**





METHODICAL PROCESSES

DATA PROCESSES

USED DATASET

REMOVED DATASET

*USED COLUMNS WILL BE IN GREEN
REMOVED COLUMNS WILL BE IN RED
BEFORE EACH QUESTION*

FOR EXAMPLE:

SHOTS
OPEN PLAY

INTERCEPTIONS

EXCLUSION/INCLUSION CRITERIA

LIMITATIONS OF SECTIONS WILL BE STATED WITHIN THIS AREA I.E.,

- PLAYERS WITH LESS THAN 450 MINUTES WERE EXCLUDED*

CALCULATION PROCESSES

FORMULA

*FORMULA FOR CREATION OF COLUMNS WILL BE IN ORANGE
BEFORE EACH QUESTION*

FOR EXAMPLE:

GOALS

+

ASSISTS

GOAL
CONTRIBUTIONS

ADDITIONAL INFORMATION

*RATIONALE OF DECISIONS WILL BE WITHIN THIS AREA
ALONGSIDE REFERENCES THAT INFORMED SELECTION/DESELECTION OF
COLUMNS*

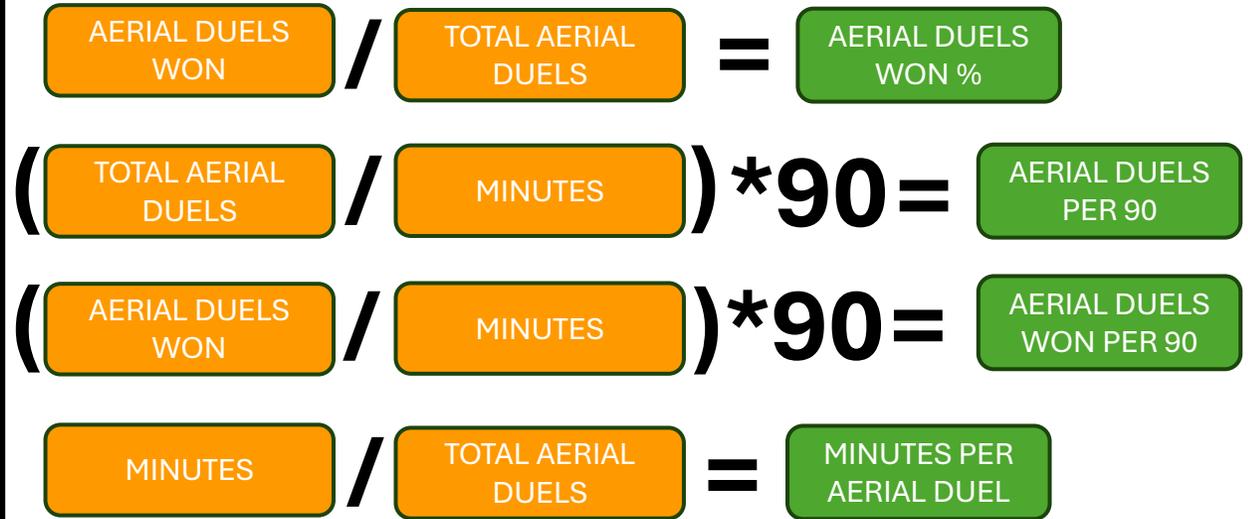


WHO WERE THE PLAYERS WITH THE HIGHEST WIN PERCENTAGE FOR AERIAL DUELS IN THE CHAMPIONSHIP IN SEASON 2019-2020?

DATA PROCESSES



CALCULATION PROCESSES



EXCLUSION/INCLUSION CRITERIA

- PLAYERS WITH NON-SPECIFIC POSITIONS I.E., DEFENDER, MIDFIELDER, ATTACKER WERE EXCLUDED AS UNRELIABLE
 - SEASONS OUTSIDE OF 2019/20 WERE EXCLUDED
- LEAGUES OTHER THAN CHAMPIONSHIP WERE EXCLUDED
- PLAYERS WITH LESS THAN 20 AERIAL DUELS WERE EXCLUDED
- PLAYERS WITH LESS THAN 450 MINUTES WERE EXCLUDED

ADDITIONAL INFORMATION

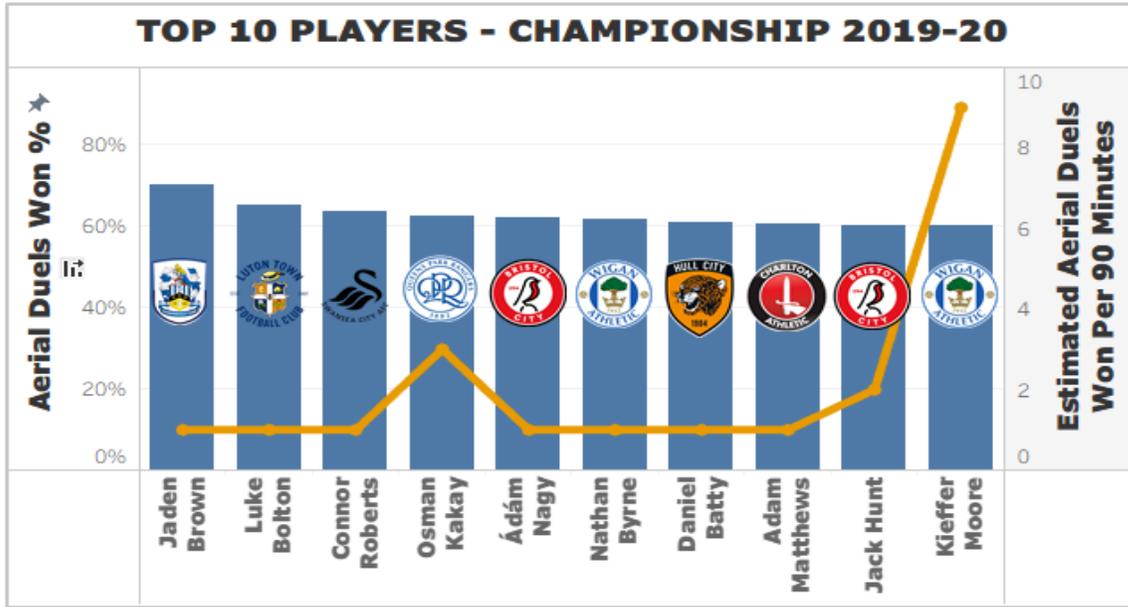
- *Ermidis et al (2019) stated the average number of aerial duels per 90, across all positions was 2. Therefore, 20 duels minimum was chosen as that would be around 10 full games on average.*
- *For 90-minute metrics, to gain substantial data that was meaningful I decided players with less than 450 minutes were excluded to provided better answers. 450 minutes would be the equivalent to 5 full games.*



WHO WERE THE PLAYERS WITH THE HIGHEST WIN PERCENTAGE FOR AERIAL DUELS IN THE CHAMPIONSHIP IN SEASON 2019-2020?

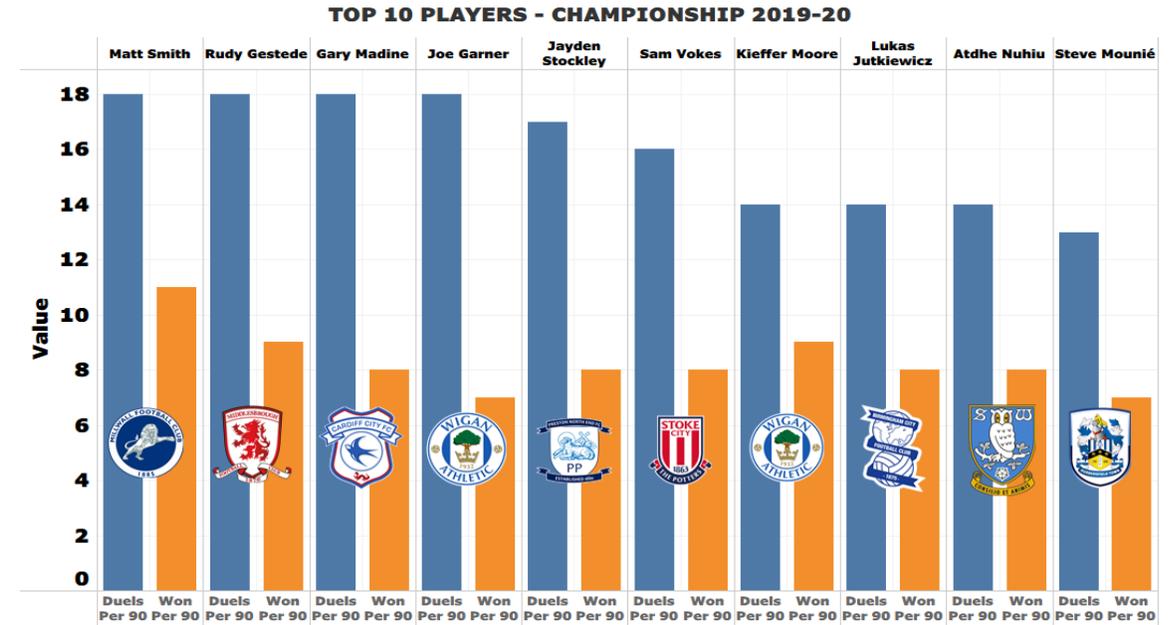


Edinburgh Napier University



Aerial Duels Won % ■
Est Aerial Duels Per 90 ■

JADEN BROWN WAS THE HIGHEST WITHIN AERIAL DUELS WON AT 70% WHEREAS KIEFFER MOORE WAS THE LOWEST OUT OF THE TOP 10 SITTING AT 60%. HOWEVER, WHAT WAS INTERESTING TO NOTICE WAS THE AVERAGE NUMBER OF AERIAL DUELS HE HAD PER 90 IN COMPARISON TO OTHERS WHICH WAS 9. THEREFORE, I WANTED TO LOOK FURTHER INTO THAT SPECIFIC STATISTIC



Est Aerial Duels Per 90 ■
Est Aerial Duels Won Per 90 ■

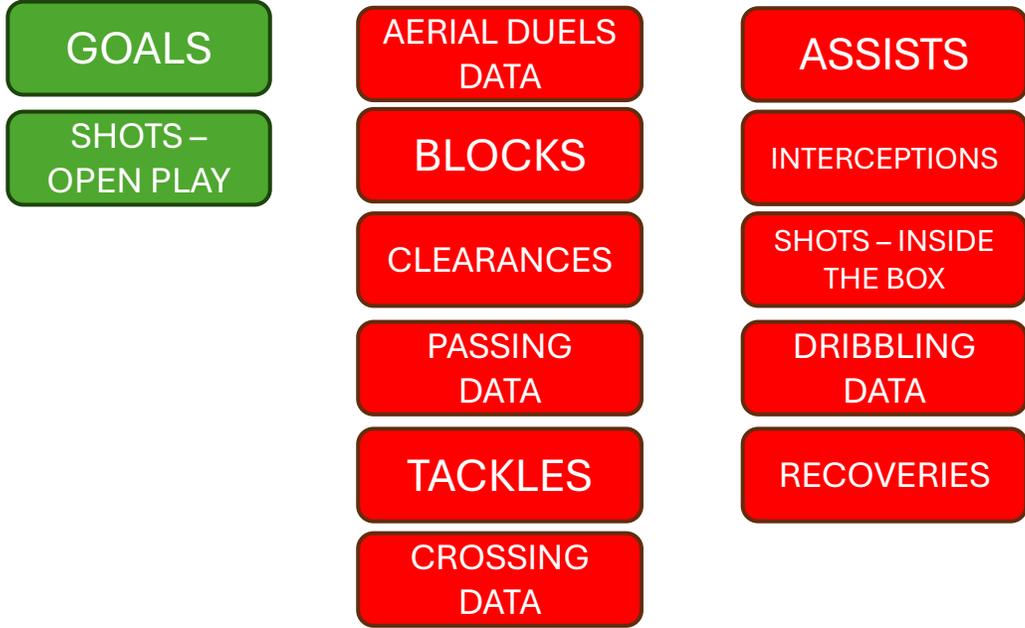
EVERY PLAYER WITHIN THE TOP 10 OF AVERAGE AERIAL DUELS PER 90 WERE STRIKERS AND NONE OF THEM HAD LESS THAN 10. WHEN WE BREAK IT DOWN FURTHER, WE CAN IDENTIFY THE AERIAL DUELS WON ACROSS THESE PLAYERS PER 90 WITH THE HIGHEST BEING MATT SMITH WITH 11, AND JOE GARNER WITH 7.

THIS IS WEEL ABOVE THE AVERAGE ACCORDING TO ERMIDIS ET AL (2019), HOWEVER AS THERE ARE SO MANY PLAYERS WITH THESE STATS, I THOUGHT IT MAY BE MORE LIKLEY



WHO WERE THE YOUNGEST ENGLISH PLAYERS TO SCORE AT LEAST 15 GOALS ACROSS THE THREE LEAGUES IN SEASON 2019-20? IDENTIFY 10 PLAYERS

DATA PROCESSES



CALCULATION PROCESSES



EXCLUSION/INCLUSION CRITERIA

- PLAYERS WITH NON-SPECIFIC POSITIONS I.E., DEFENDER, MIDFIELDER, ATTACKER WERE EXCLUDED AS UNRELIABLE
 - SEASONS OUTSIDE OF 2019/20 WERE EXCLUDED
 - GOALKEEPER DATA WAS EXCLUDED
- PLAYERS WITH LESS THAN 15 GOALS WERE EXCLUDED
- PLAYERS WHO WERE NOT ENGLISH WERE EXCLUDED

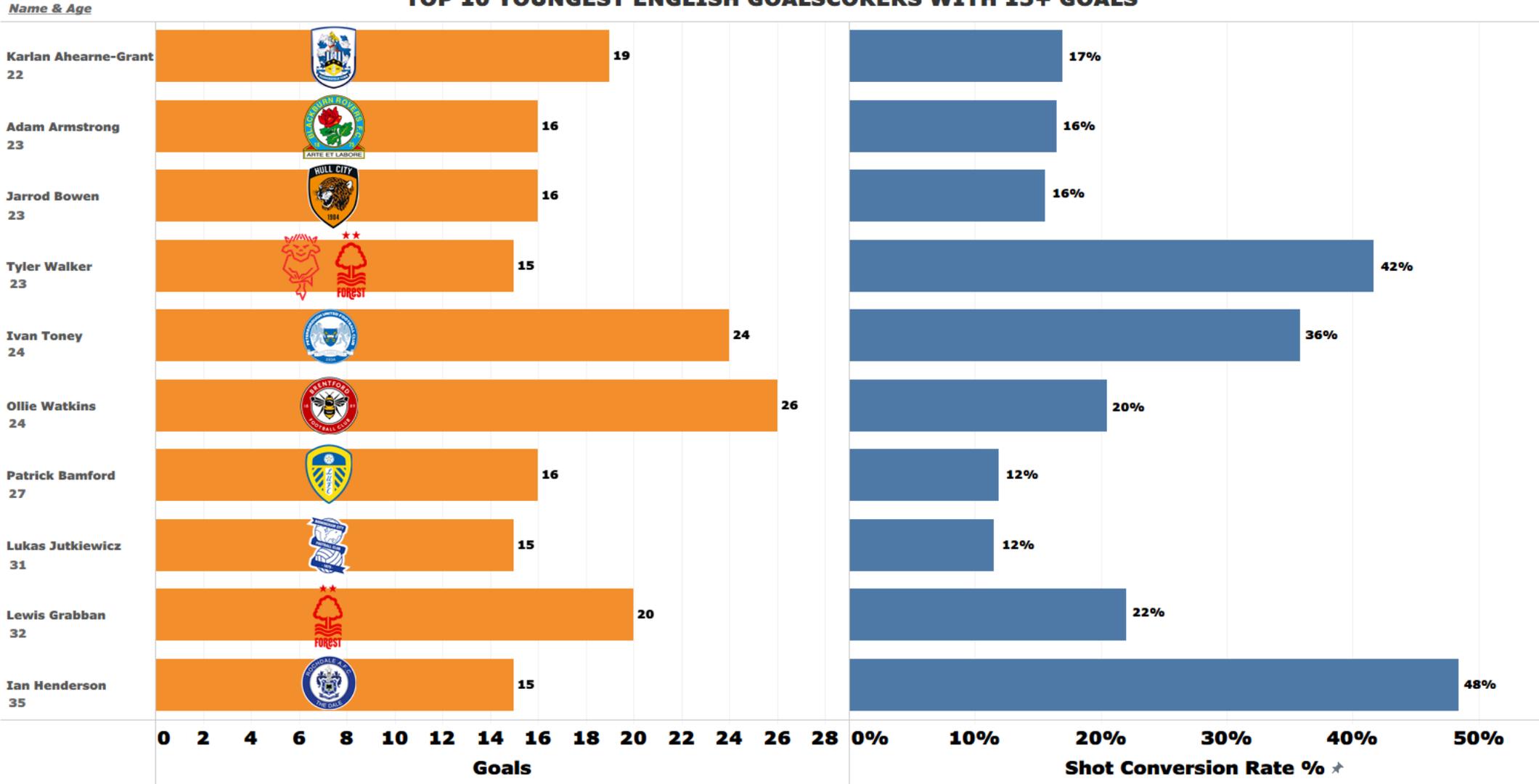
ADDITIONAL INFORMATION

- Shots from inside the box were removed as my interpretation was that shots from open play included that data. Therefore, shots from open play was determined to be total shots.
- Shot conversion rate does not included goals that may have been from penalties and freekicks, as the calculation included the shots from open play columns.
- Was only 9 English players with 15+ goals, however I combined Tyler Walker's data across two clubs, which resulted in a total of 10 players to help answer the question.



WHO WERE THE YOUNGEST ENGLISH PLAYERS TO SCORE AT LEAST 15 GOALS ACROSS THE THREE LEAGUES IN SEASON 2019-20? IDENTIFY 10 PLAYERS

TOP 10 YOUNGEST ENGLISH GOALSCORERS WITH 15+ GOALS



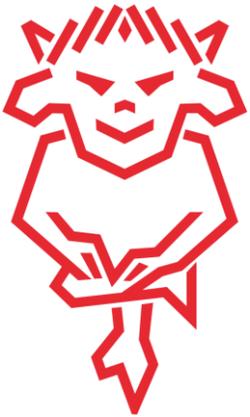


WHO WERE THE YOUNGEST ENGLISH PLAYERS TO SCORE AT LEAST 15 GOALS ACROSS THE THREE LEAGUES IN SEASON 2019-20? IDENTIFY 10 PLAYERS

INITIALLY THERE WERE ONLY A TOTAL OF NINE ENGLISH PLAYERS WHO HAD 15 OR MORE GOALS WHICH THEREFORE MAKES THEM THE YOUNGEST ACROSS THE THREE LEAGUES

LINCOLN CITY FC

14 GOALS



NOTTINGHAM FOREST

1 GOAL



AFTER LOOKING MORE IN DEPTH WITHIN THE DATA, TYLER WALKER HAD PLAYED ACROSS TWO CLUBS IN THAT SEASON AND WHEN COMBINING HIS DATA, HE HAD ALSO MADE 15 GOALS WITHIN THAT SEASON WHICH TOOK THE TOTAL TO 10 PLAYERS. HE ALSO HAD THE SECOND HIGHEST SHOT CONVERSION RATE AT 42%

IAN HENDERSON



OLLIE WATKINS WAS THE YOUNGEST ENGLISH WHO HAD SCORED THE MOST GOALS, WITH A TOTAL OF 26

ADDITIONALLY, IAN HERNDERSON WAS THE OLDEST ENGLISHMAN WITHIN THE LIST AT 35 YEARS OF AGE, BUT HAD THE BEST SHOT CONVERSION RATE OF 48%

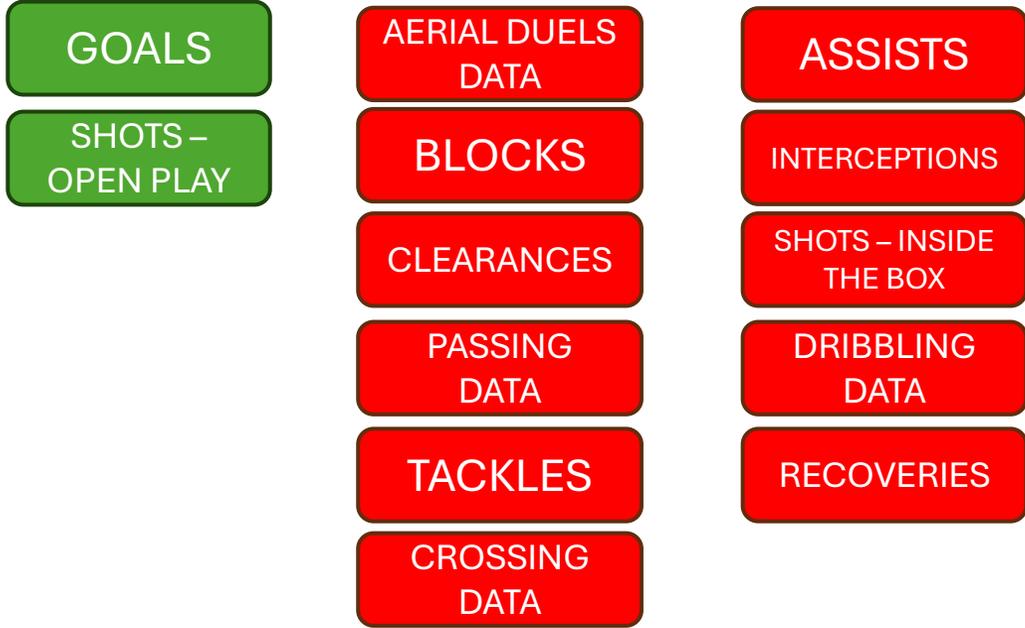
OLLIE WATKINS



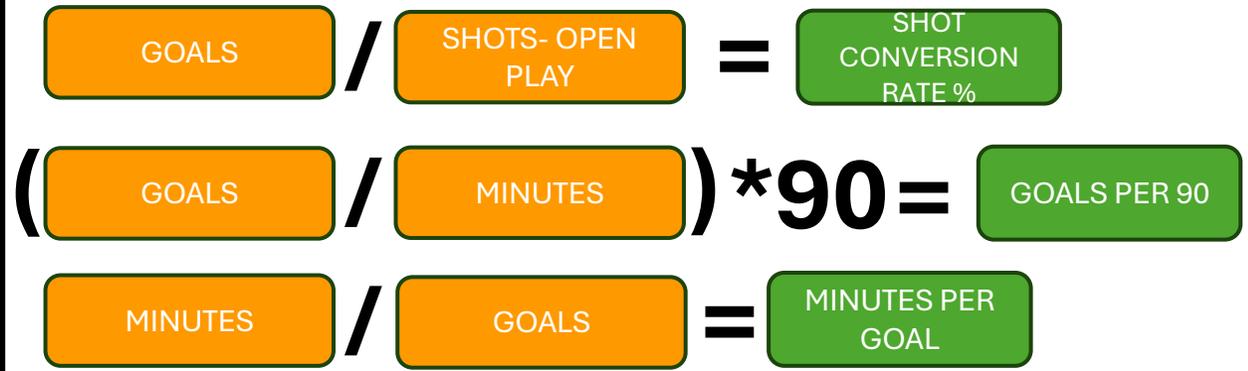


WHICH PLAYERS HAD THE BEST 'GOALS TO MINUTES' RATIO IN EACH LEAGUE WITHIN THE 2019/2020 SEASON?

DATA PROCESSES



CALCULATION PROCESSES



EXCLUSION/INCLUSION CRITERIA

- PLAYERS WITH NON-SPECIFIC POSITIONS I.E., DEFENDER, MIDFIELDER, ATTACKER WERE EXCLUDED AS UNRELIABLE
 - SEASONS OUTSIDE OF 2019/20 WERE EXCLUDED
- PLAYERS WITH LESS THAN 450 MINUTES WERE EXCLUDED
- PLAYERS WHO HAD LESS SHOTS THAN THEY DID GOALS WERE EXCLUDED
- PLAYERS WHO HAD DUPLICATED DATA WERE EXCLUDED

ADDITIONAL INFORMATION

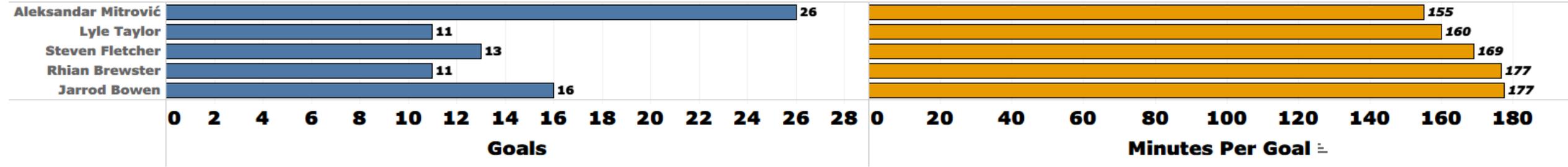
- Shots from inside the box were removed as my interpretation was that shots from open play included that data. Therefore, shots from open play was determined to be total shots.
- Duplicated players were excluded as across most of these players they had scored the same number of goals for both clubs i.e., Nakhi Wells had 18 goals for both clubs within that season. Transfermarkt (2026) stated this wasn't the case and had 15 goals for one club, and 3 for the other (See Figure In Insights).



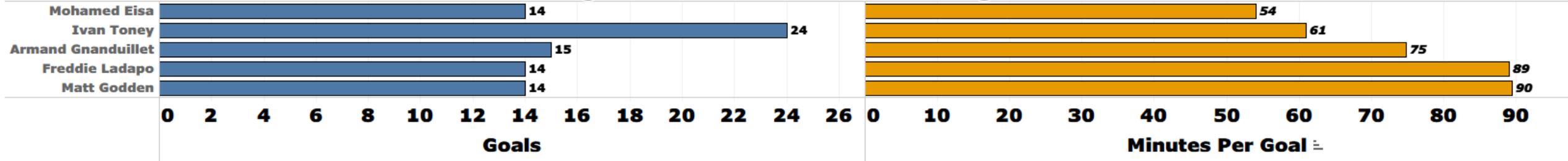
WHICH PLAYERS HAD THE BEST 'GOALS TO MINUTES' RATIO IN EACH LEAGUE WITHIN THE 2019/2020 SEASON?



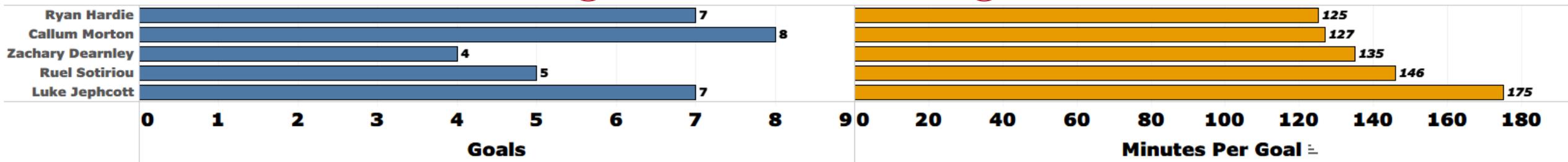
CHAMPIONSHIP - GOALS TO MINUTES



LEAGUE 1 - GOALS TO MINUTES



LEAGUE 2 - GOALS TO MINUTES





WHICH PLAYERS HAD THE BEST 'GOALS TO MINUTES' RATIO IN EACH LEAGUE WITHIN THE 2019/2020 SEASON?



ALEKSANDAR MITROVIC HAD THE BEST GOALS TO MINUTES RATIO, SCORING AT LEAST ONE EVERY TWO GAMES



MOHAMED EISA SCORED ONE GOAL EVERY 54 MINUTES, AND HAD A 74% SHOT CONVERSION RATE



RYAN HARDIE HAD THE BEST GOALS TO MINUTES IN LEAGUE 2, CONVERTING EVERY 125 MINUTES

DETAILED STATS OF NAKHI WELLS

This page contains information about a player's detailed stats. In the info box, you can filter by period, club, type of league and competition. Th...

Filter by season: 19/20
 Filter by club: All clubs
 League ranking / League type: All types
 Filter by competition: Championship
 Filter by position: All positions
 Filter by coach: All coaches **Show**

Compact Detailed

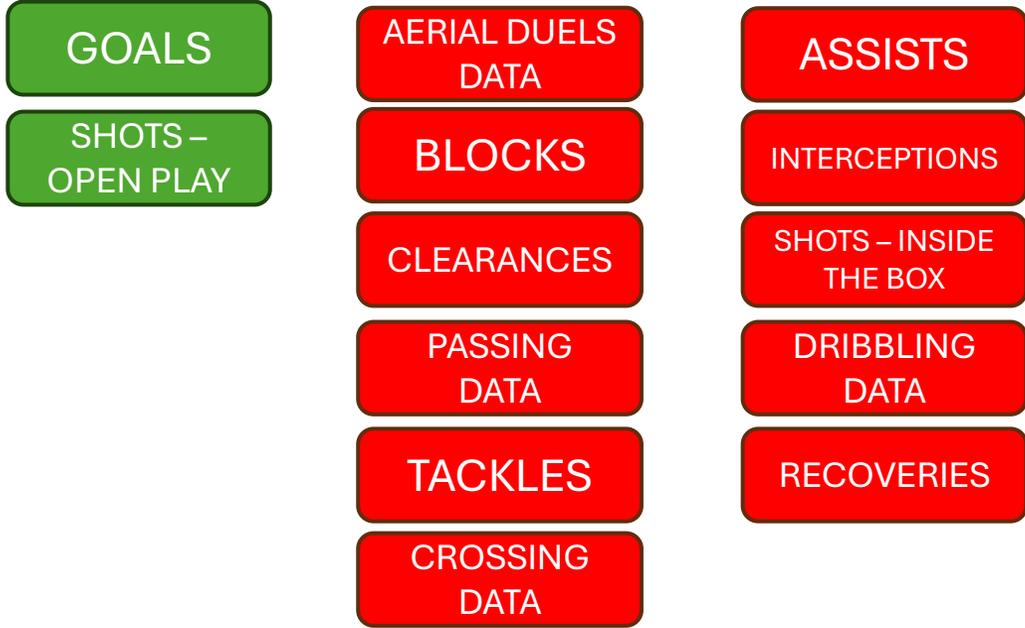
Competition	Club	MP	Goals	Assists	Yellow Cards	Red Cards	Minutes
Championship		17	5	-	-	-	1.192'
Championship		26	13	3	4	-	1.617'
Total:		43	18	3	4	-	2.809'

Data of Nakhi Wells in Season 19/20 in Championship (Transfermarkt, 2026)

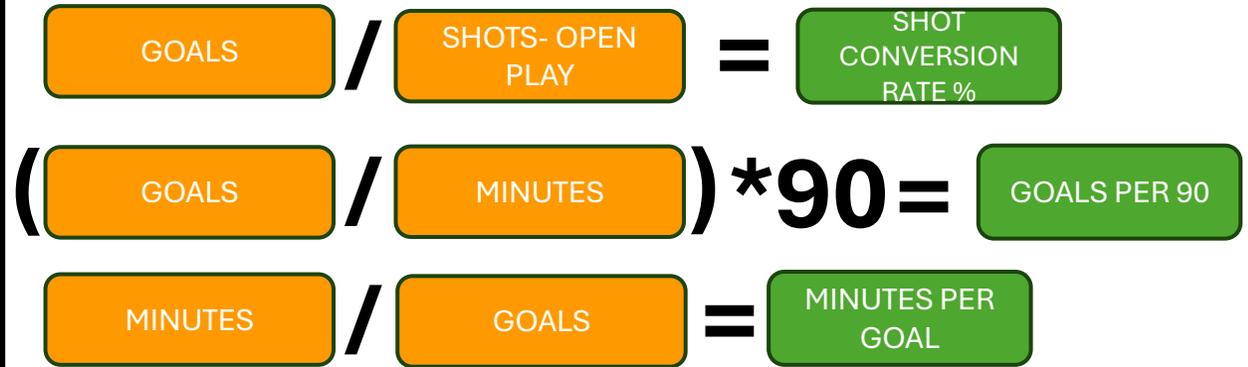


WHICH PLAYERS HAD THE HIGHEST CONVERSION RATE FROM SHOTS TO GOALS ACROSS THREE LEAGUES?

DATA PROCESSES



CALCULATION PROCESSES



EXCLUSION/INCLUSION CRITERIA

- PLAYERS WITH NON-SPECIFIC POSITIONS I.E., DEFENDER, MIDFIELDER, ATTACKER WERE EXCLUDED AS UNRELIABLE
- CHAMPIONSHIP 2019/20, LEAGUE 1 & LEAGUE 2 2018/19 SEASONS WERE EXCLUDED
- PLAYERS WITH LESS THAN 450 MINUTES WERE EXCLUDED
- PLAYERS WHO HAD LESS THAN 20 SHOTS WERE EXCLUDED
- PLAYERS WHO HAD DUPLICATED DATA WERE EXCLUDED

ADDITIONAL INFORMATION

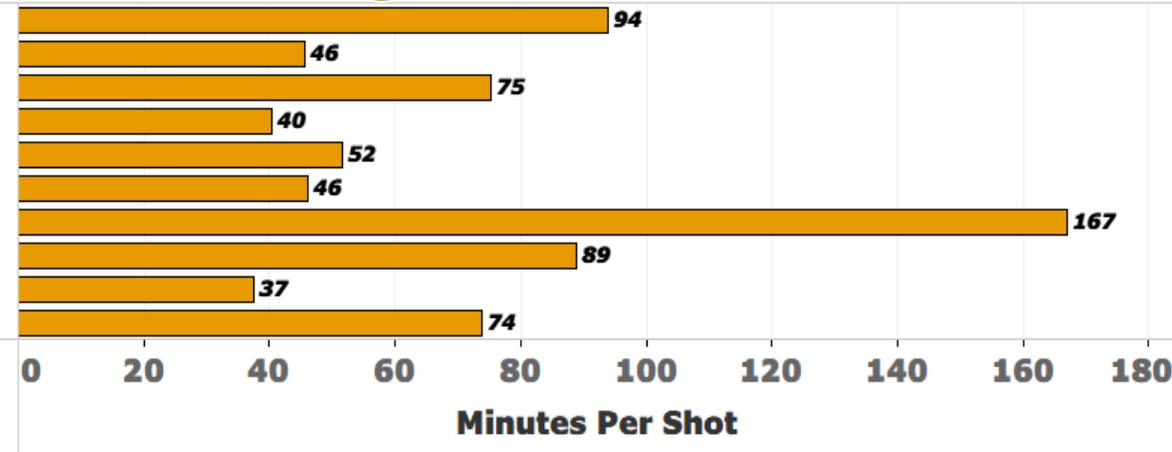
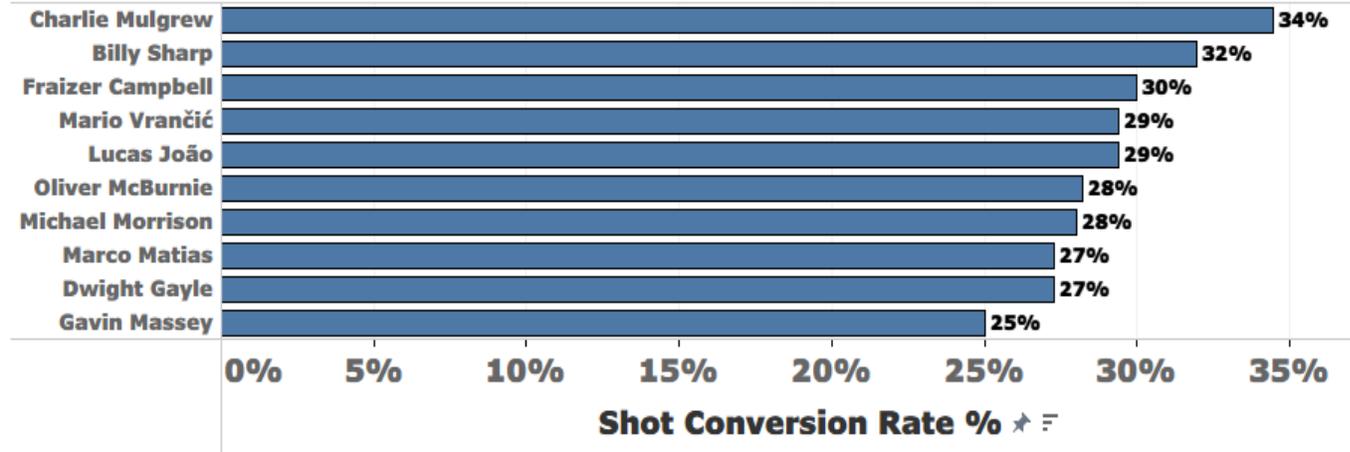
- Shots from inside the box were removed as my interpretation was that shots from open play included that data. Therefore, shots from open play was determined to be total shots.
- To gain valuable insight to shot conversion rate data, it made sense to consider minutes and shots data to have an exclusion criteria
- Duplicated data were excluded similar to last question due to uncertainty of data



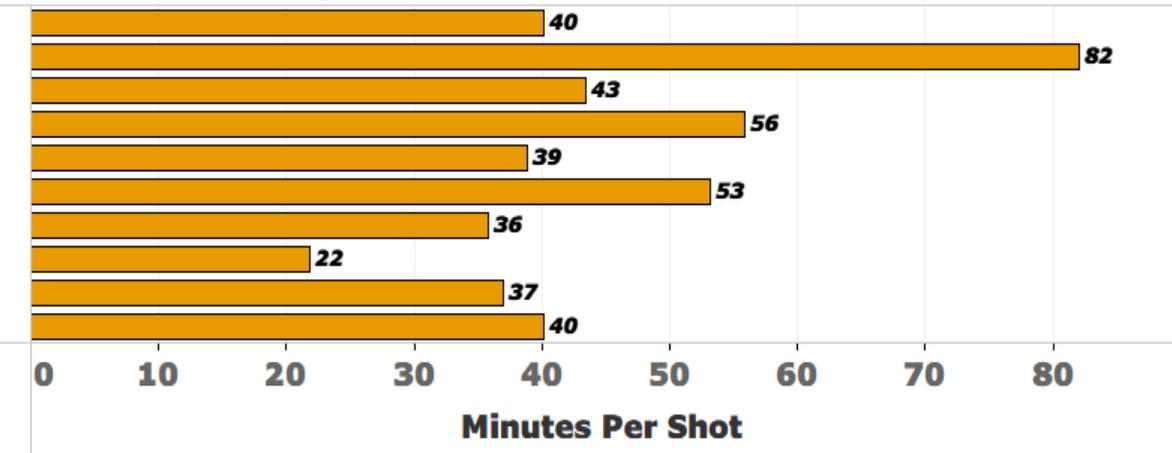
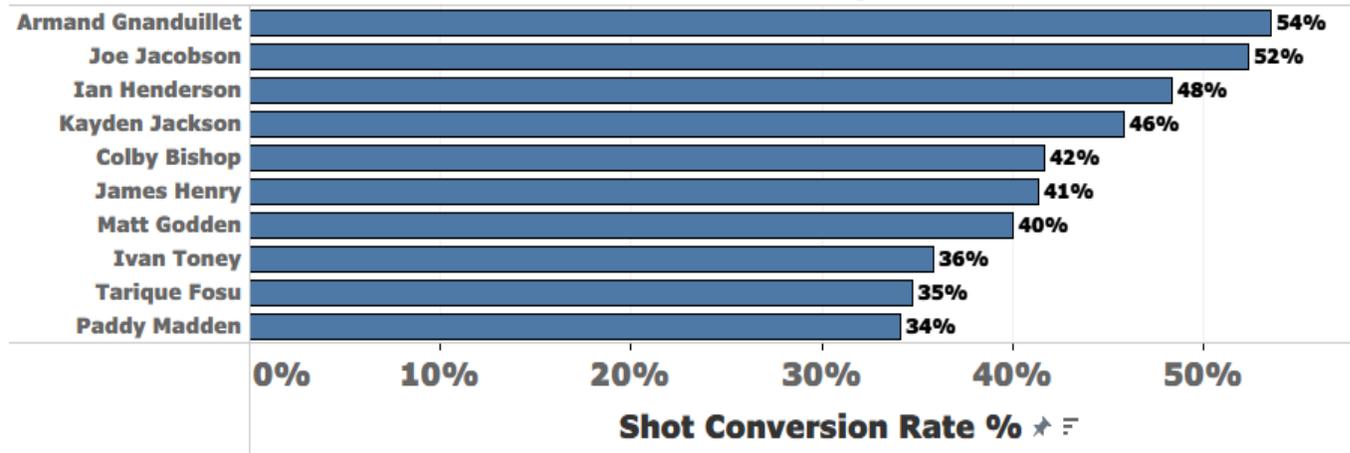
WHICH PLAYERS HAD THE HIGHEST CONVERSION RATE FROM SHOTS TO GOALS ACROSS THREE LEAGUES?



2018/19 CHAMPIONSHIP - SHOT CONVERSION RATE %



2019/20 LEAGUE 1 - SHOT CONVERSION RATE %

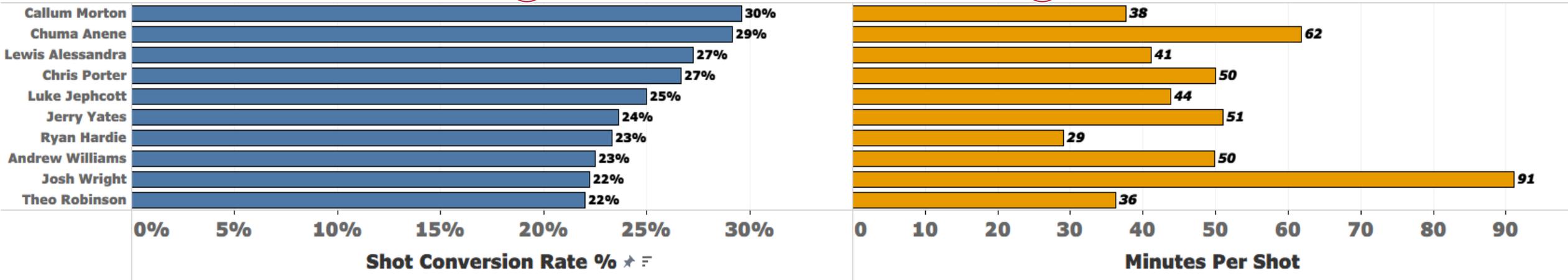




WHICH PLAYERS HAD THE HIGHEST CONVERSION RATE FROM SHOTS TO GOALS ACROSS THREE LEAGUES?



2019/20 LEAGUE 2 - SHOT CONVERSION RATE %





WHICH PLAYERS HAD THE HIGHEST CONVERSION RATE FROM SHOTS TO GOALS ACROSS THREE LEAGUES?



CHARLIE MULGREW SHOWED THE BEST SHOT CONVERSION RATE, AS WELL AS BEING THE SECOND HIGHEST IN THE NUMBER OF MINUTES IT TOOK BEFORE SHOOTING. THEREFORE, SUGGESTING THAT HE WAS MORE EFFECTIVE IN CONVERTING SHOTS WHILST HAVING LOWER SHOTS IN TOTAL THAN OTHERS



ARMAND GNANDUILLET SHOWED THE HIGHEST SHOT CONVERSION RATE IN LEAGUE 1. HOWEVER, IF WE LOOK FURTHER INTO THE DATA, JOE JACOBSON WAS CONVERTING OVER HALF THE NUMBER OF SHOTS WHILST AVERAGING A GOAL EVERY TWO GAMES AS A FULL BACK. THE AVERAGE SHOT CONVERSION RATE AT LEAGUE 2 WAS 43%, WHICH IS HIGHER THAN THE BEST PLAYER OF BOTH CHAMPIONSHIP AND LEAGUE 2

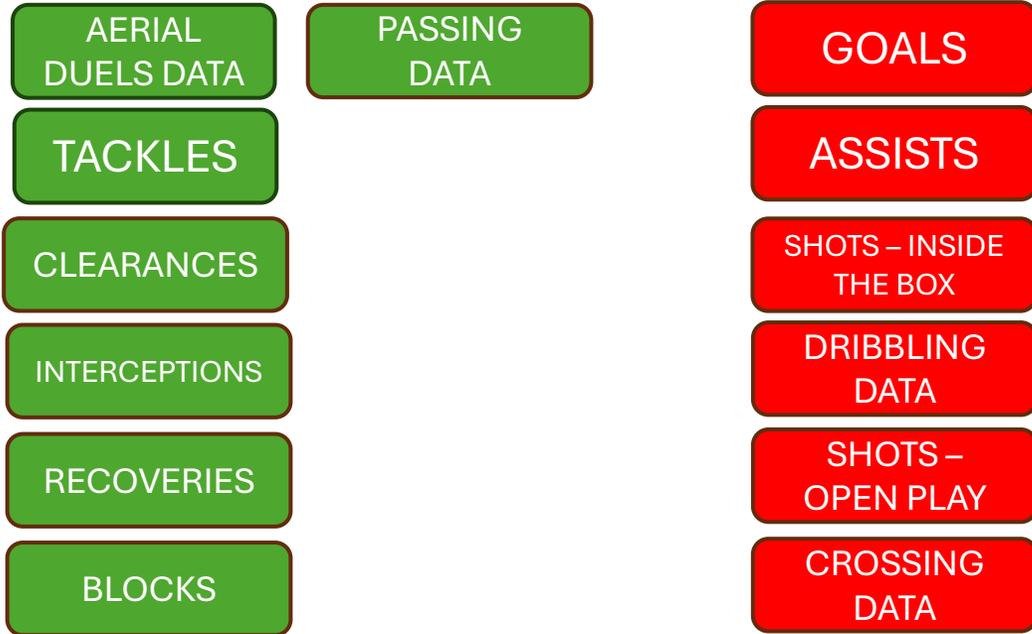


OVERALL, IN LEAGUE 2 THE SHOT CONVERSION RATE WAS POOR BEING 30% OR LOWER. EVEN THOUGH CALLUM MORTON WAS ONLY AT 30%, HE ONLY PLAYED 1016 MINUTES WHICH IS AROUND 11 FULL MATCHES, AND SCORED 8 GOALS IN THAT TIME SPAN.

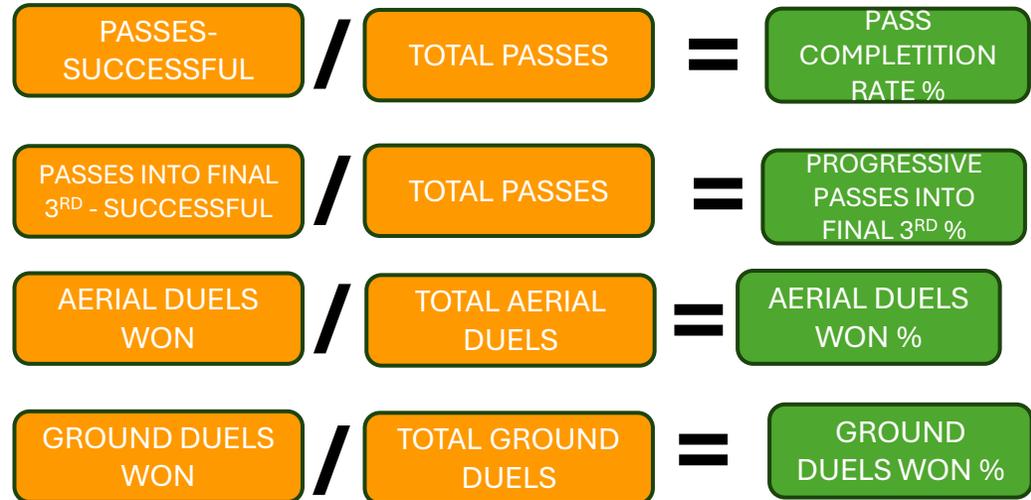


WHO WERE THE MOST EFFECTIVE DEFENSIVE MIDFIELD PLAYERS IN THE CHAMPIONSHIP 2018/2019 SEASON?

DATA PROCESSES



CALCULATION PROCESSES



EXCLUSION/INCLUSION CRITERIA

- **PLAYERS WHO WERE NOT DEFENSIVE MIDFIELDERS WERE EXCLUDED**
- **CHAMPIONSHIP 2019/20, LEAGUE 1 & LEAGUE 2 SEASONS WERE EXCLUDED**
- **PLAYERS WITH LESS THAN 450 MINUTES WERE EXCLUDED**
- **PLAYERS WHO HAD DUPLICATED DATA WERE EXCLUDED**

ADDITIONAL INFORMATION

- *I created lists of Top 5 players in the different columns that I believed were vital for a defensive midfielder. Those columns were: Pass Completion %, Progressive Passes to Final 3rd %, Aerial Duels Won %, Ground Duels Won %, Most Interceptions, Most Tackles, and Most Recoveries.*
- *I went through each column and noted players who appeared most often, which then narrowed down to a list of four players.*
- *From those four players, I noted who appeared at the top of the list for each column, which then helped me identify the best out of the four players.*

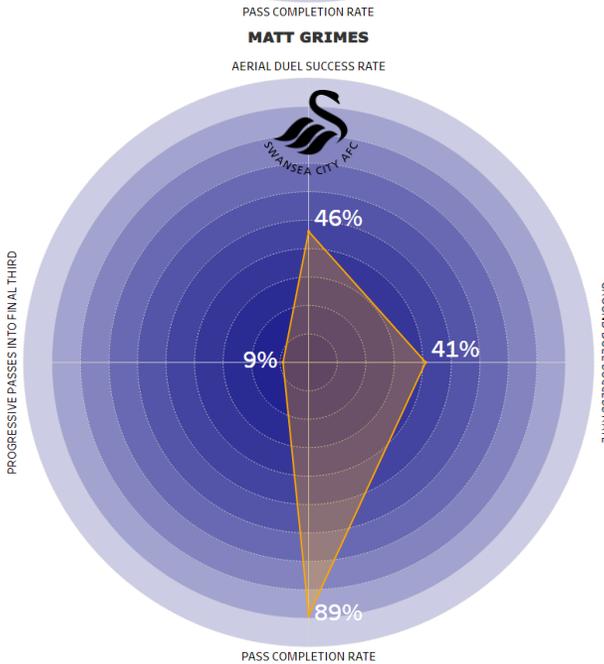
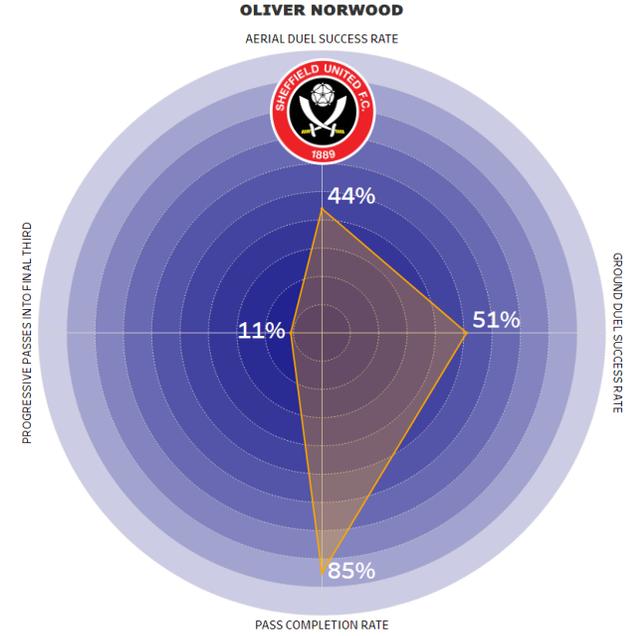
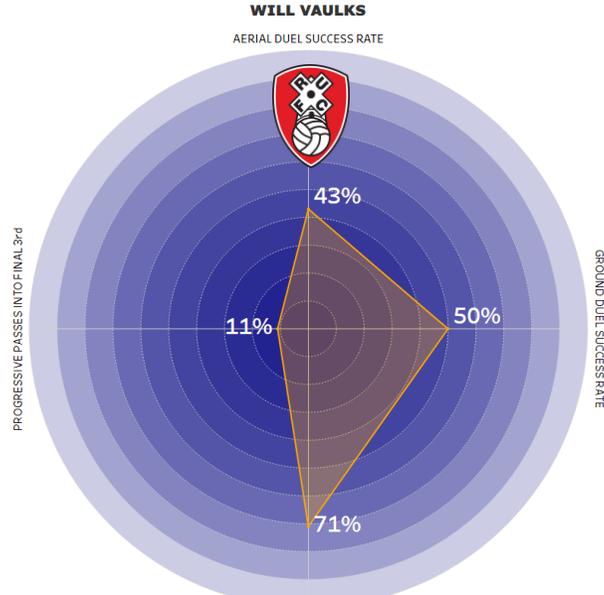
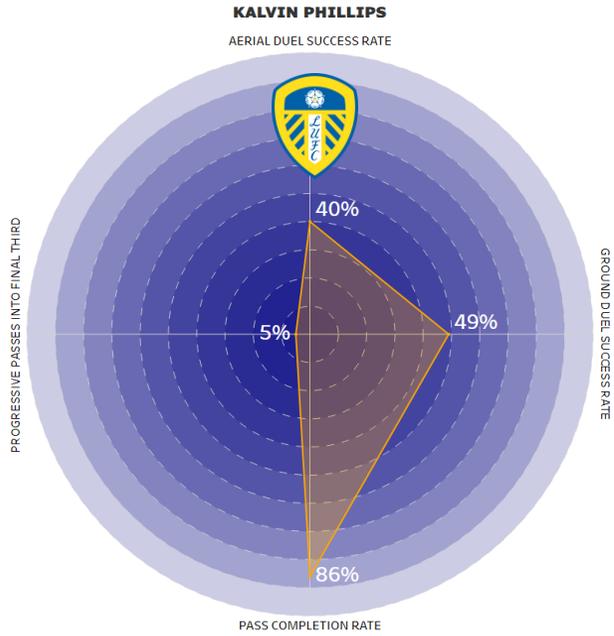


WHO WERE THE MOST EFFECTIVE DEFENSIVE MIDFIELD PLAYERS IN THE CHAMPIONSHIP 2018/2019 SEASON?



Edinburgh Napier University

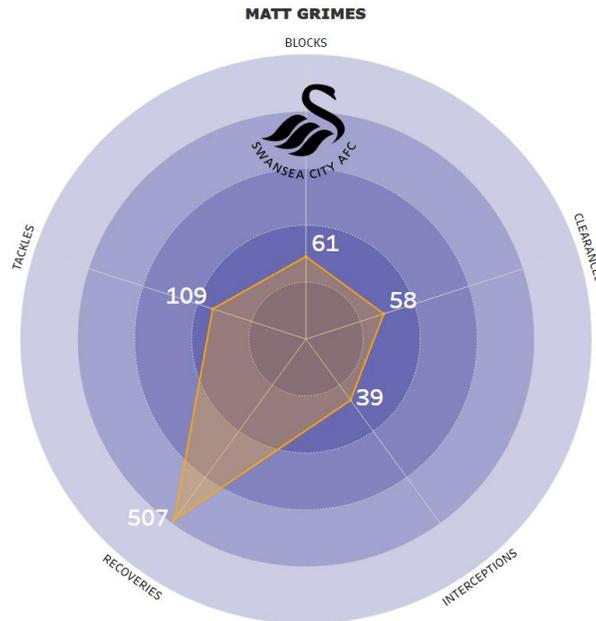
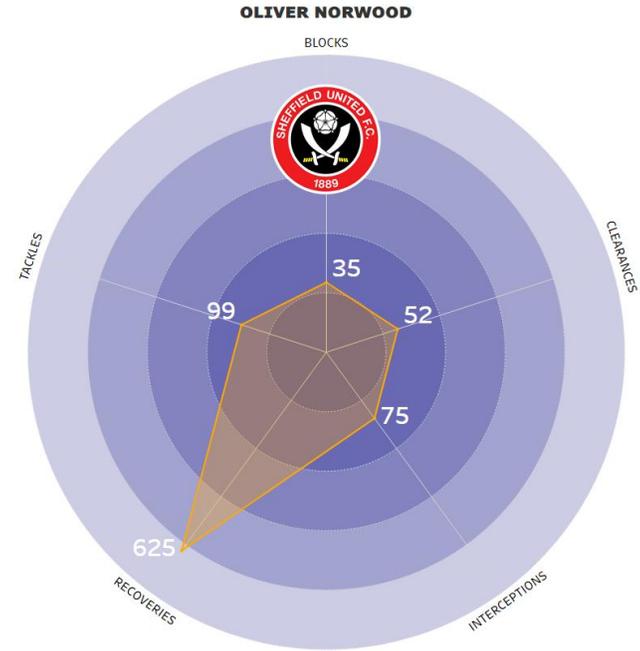
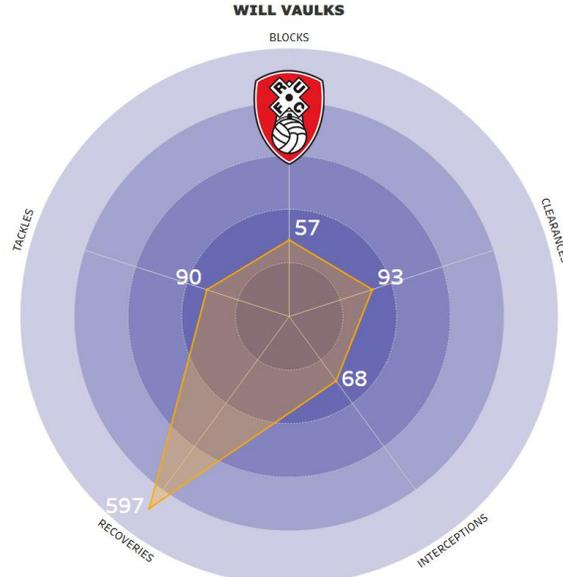
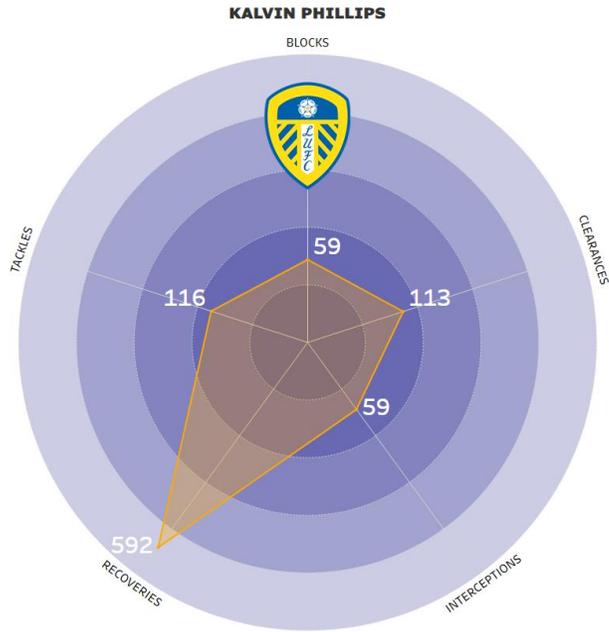
TOP FOUR DEFENSIVE MIDFIELDERS DUELS STATISTICS





WHO WERE THE MOST EFFECTIVE DEFENSIVE MIDFIELD PLAYERS IN THE CHAMPIONSHIP 2018/2019 SEASON?

TOP FOUR DEFENSIVE MIDFIELDERS ADDITIONAL STATISTICS





WHO WERE THE MOST EFFECTIVE DEFENSIVE MIDFIELD PLAYERS IN THE CHAMPIONSHIP 2018/2019 SEASON?

RANKINGS OF COLUMNS

OLIVER NORWOOD
PROGRESSIVE PASS INTO FINAL 3 rd %
GROUND DUELS WON %
RECOVERIES
INTERCEPTIONS

KALVIN PHILLIPS
TACKLES
CLEARANCES

MATT GRIMES
PASS COMPLETION %
AERIAL DUELS WON %
BLOCKS

WILL VAULKS

ALL FOUR PLAYERS RANKED WITHIN THE TOP 5 THROUGH THREE OF MORE DESIRED COLUMNS WITHIN THE FULL DATASET

ADDITIONALLY, IF YOU WERE TO LOOK AT THE STATS FROM A SCOUTING PERSPECTIVE, THE COULMNS SHOWN UNDERNEATH THE PLAYERS INDICATES CERTAIN AREAS OF INTEREST

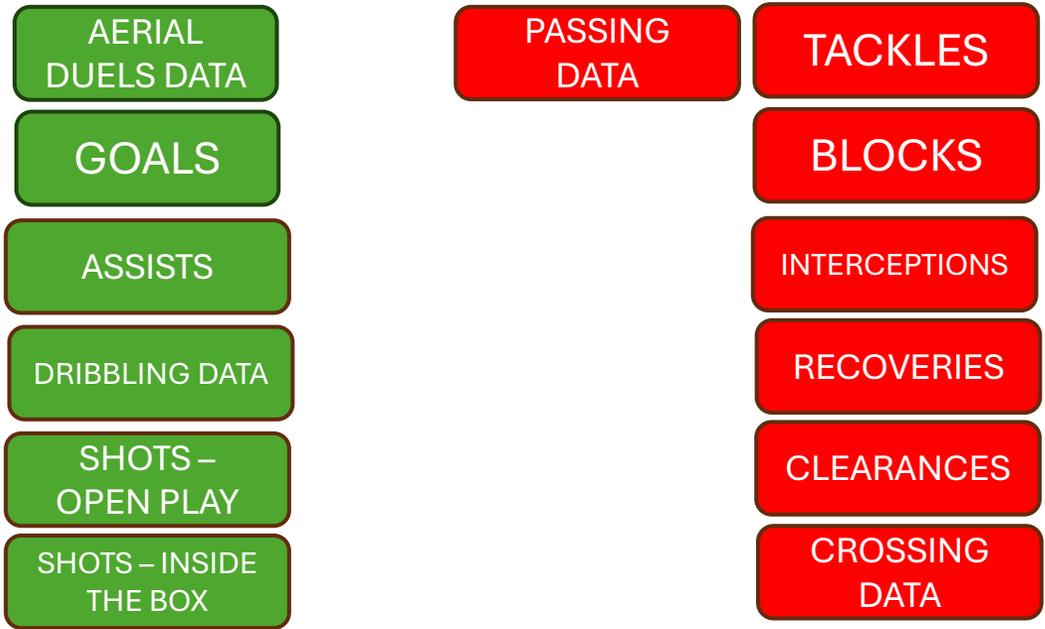
DUE TO THE POINT AND SCORING SYSTEM I USED, OLIVER NORWOOD WOULD BE THE DESIRED CHOICE

THE COLUMNS UNDERNEATH EACH PLAYER REPRESENTS THE COLOUMN THAT THEY WERE HIGHEST RANKING OUT OF EACH OTHER



WHO WERE THE MOST VALUABLE PLAYERS FOR EACH LEAGUE IN THE 2019/2020 SEASON?

DATA PROCESSES



CALCULATION PROCESSES



EXCLUSION/INCLUSION CRITERIA

- PLAYERS WHO WERE NOT STRIKERS AND WINGERS WERE EXCLUDED
 - ONE ASSIST COLUMN WAS EXCLUDED
 - 2018/19 SEASONS WERE EXCLUDED
- PLAYERS WITH LESS THAN 1350 MINUTES WERE EXCLUDED (ROUGHLY HALF OF A SEASON)
 - PLAYERS WHO HAD DUPLICATED DATA WERE EXCLUDED
- PLAYERS WITH A GOAL CONTRIBUTION OF LESS THAN 20 WERE EXCLUDED

ADDITIONAL INFORMATION

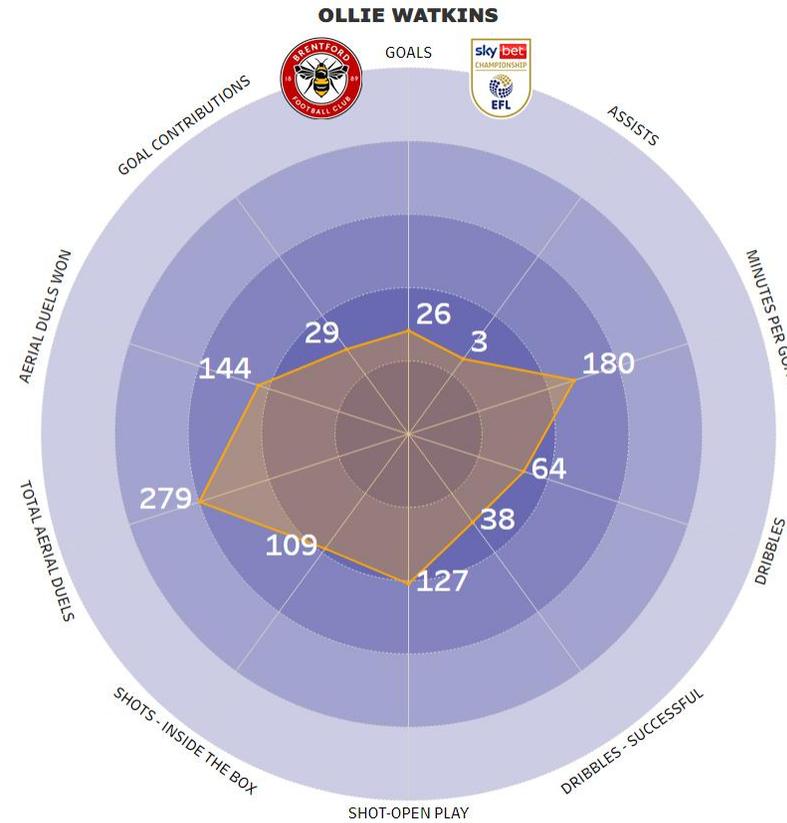
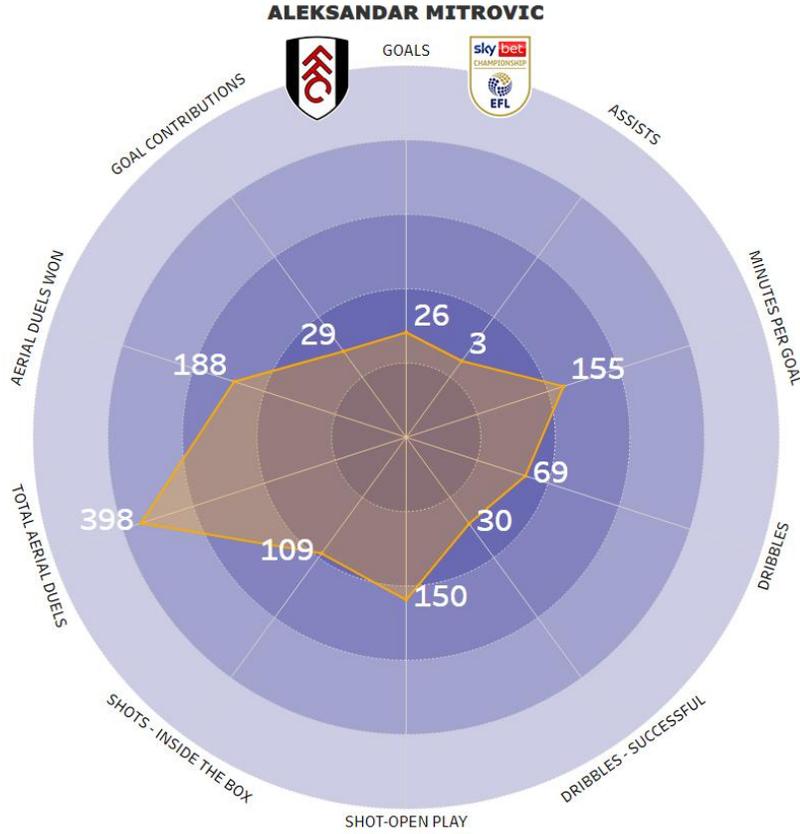
- One assist column was excluded as the average number of assists across all players in dataset was 46 for the season which is an unrealistic number. Some players had 90+ assists for the season.
- Lago-Penas et al (2010) stated that goals and shots are the most influential factors of match results. Therefore, as forward players are more likely to have more shots and goals than anyone else on the pitch, that is why I chose them as the Most Valuable Players.



WHO WERE THE MOST VALUABLE PLAYERS FOR EACH LEAGUE IN THE 2019/2020 SEASON?



Edinburgh Napier University



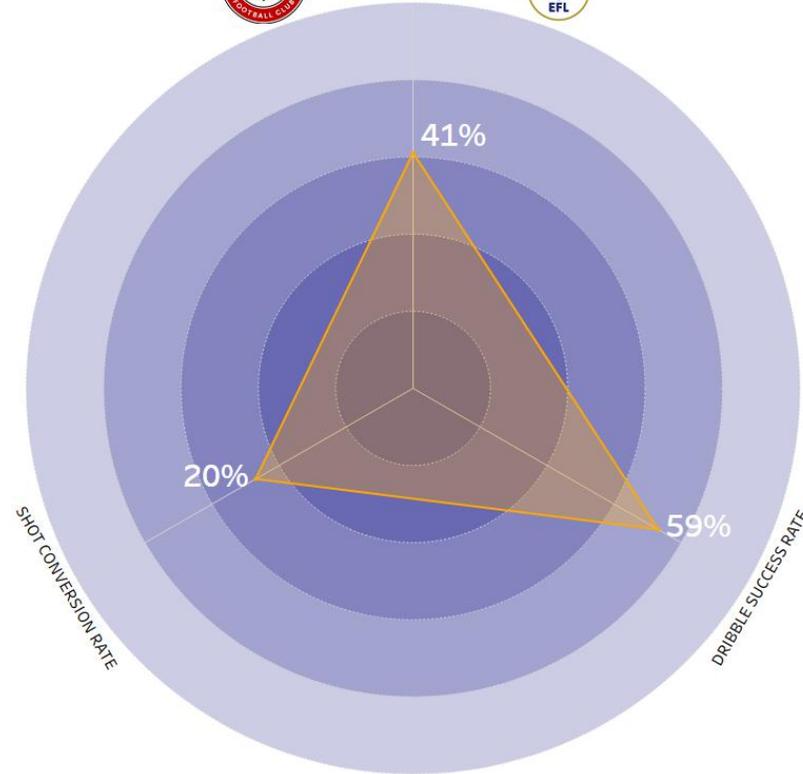
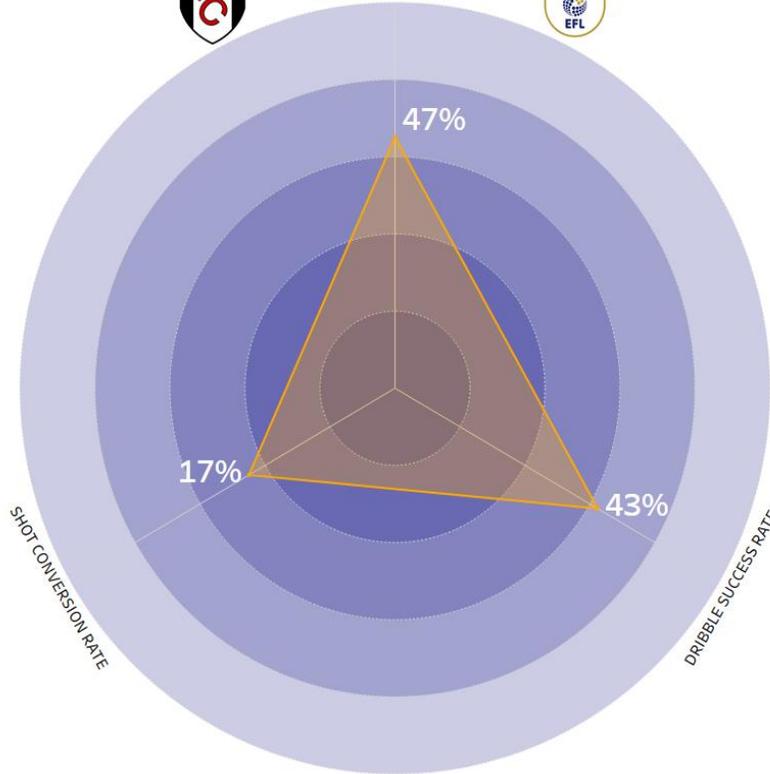
PLAYER NAME	MINUTES PLAYED	MINUTES PER GOAL	MINUTES PER ASSIST
ALEKSANDAR MITROVIC	4029	155	1343
OLLIE WATKINS	4690	180	1563



WHO WERE THE MOST VALUABLE PLAYERS FOR EACH LEAGUE IN THE 2019/2020 SEASON?



Edinburgh Napier University



ALEKSANDAR MITROVIC HAS THE SAME CONTRIBUTIONS WITHIN A BETTER TIME SPAN THAN OLLIE WATKINS, THEREFORE HE WOULD IN MY OPINION BE THE MOST VALUABLE PLAYER.

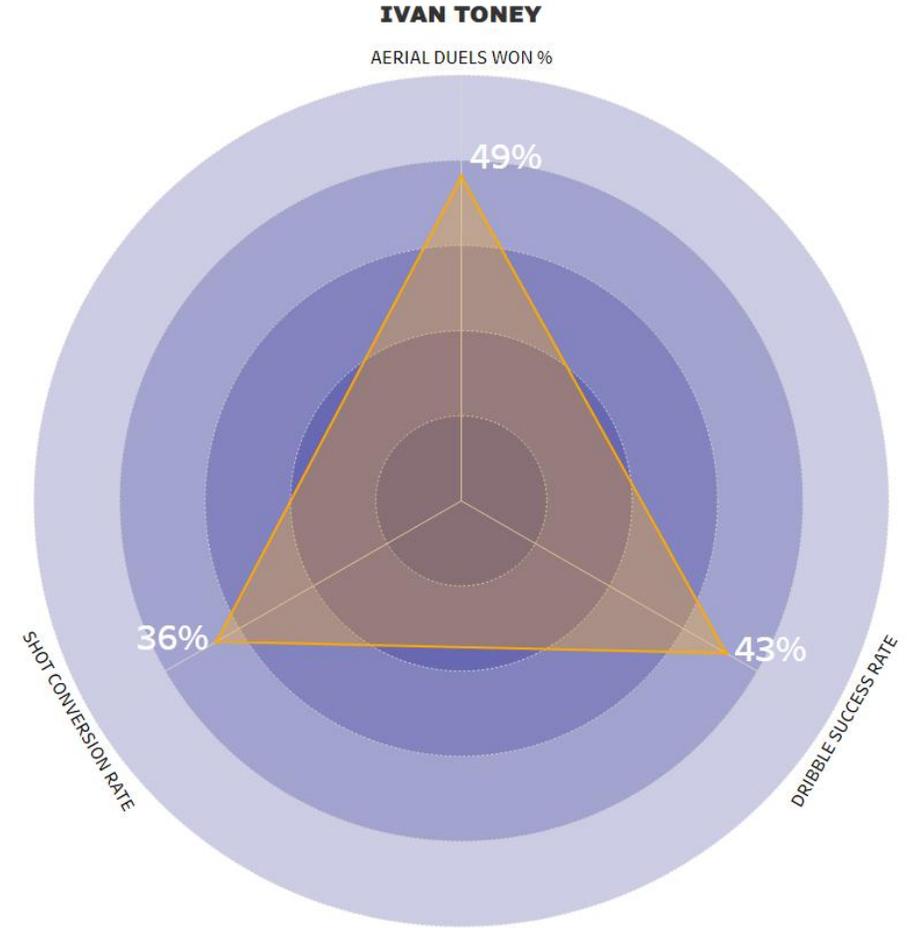
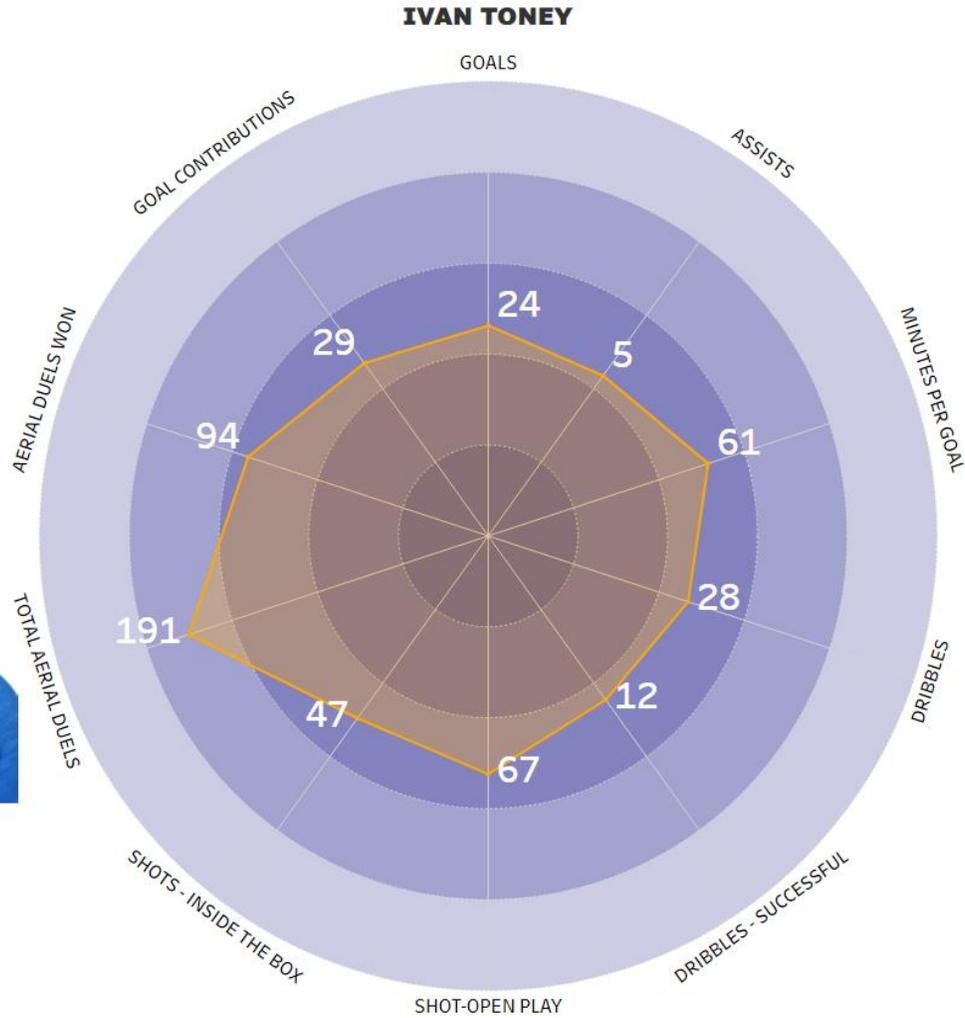
ALTHOUGH FOR SOME THEY MAY CHOOSE OLLIE WATKINS AS THEY BOTH SUIT DIFFERENT STYLES OF PLAY SUGGESTED BY THE DATA I.E., MITROVIC HAS MORE AERIAL DUELS WON SO MAY BE BETTER WITH MORE DIRECT PLAY AND DELIVERIES, WHEREAS WATKINS HAS MORE SUCCESSFUL DRIBBLES SO MAY BE BEST SUITED TO A BALL PLAYING TEAM ALLOWING HIM TO GO 1v1, AND HE ALSO HAS A BETTER SHOT CONVERESION RATE WITH LESS SHOTS TAKEN



WHO WERE THE MOST VALUABLE PLAYERS FOR EACH LEAGUE IN THE 2019/2020 SEASON?



Edinburgh Napier University



LaDataViz

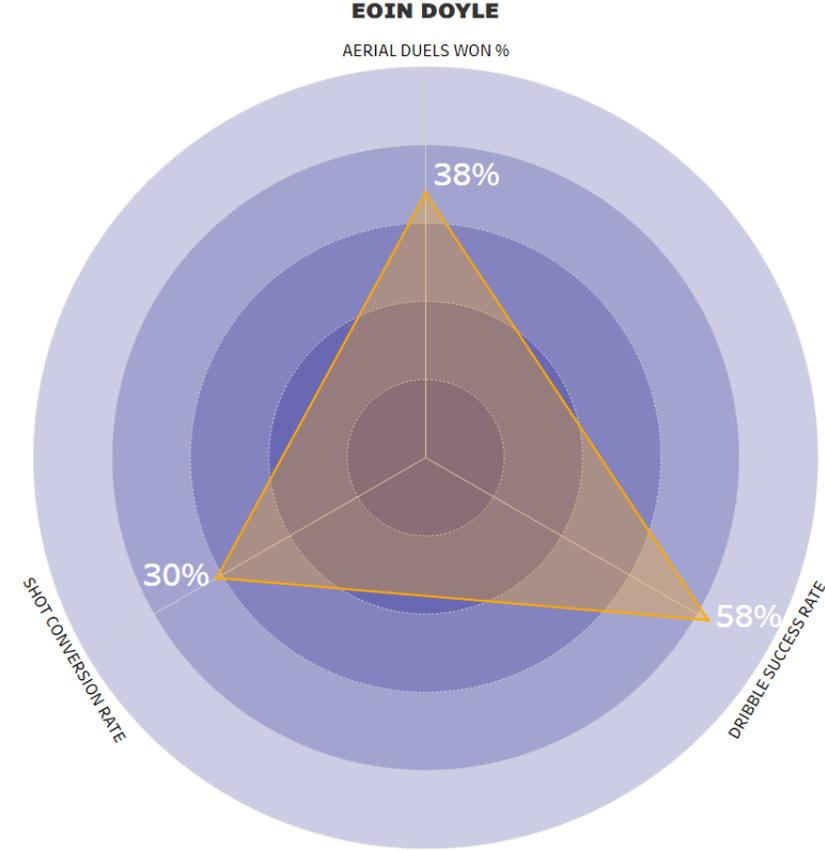
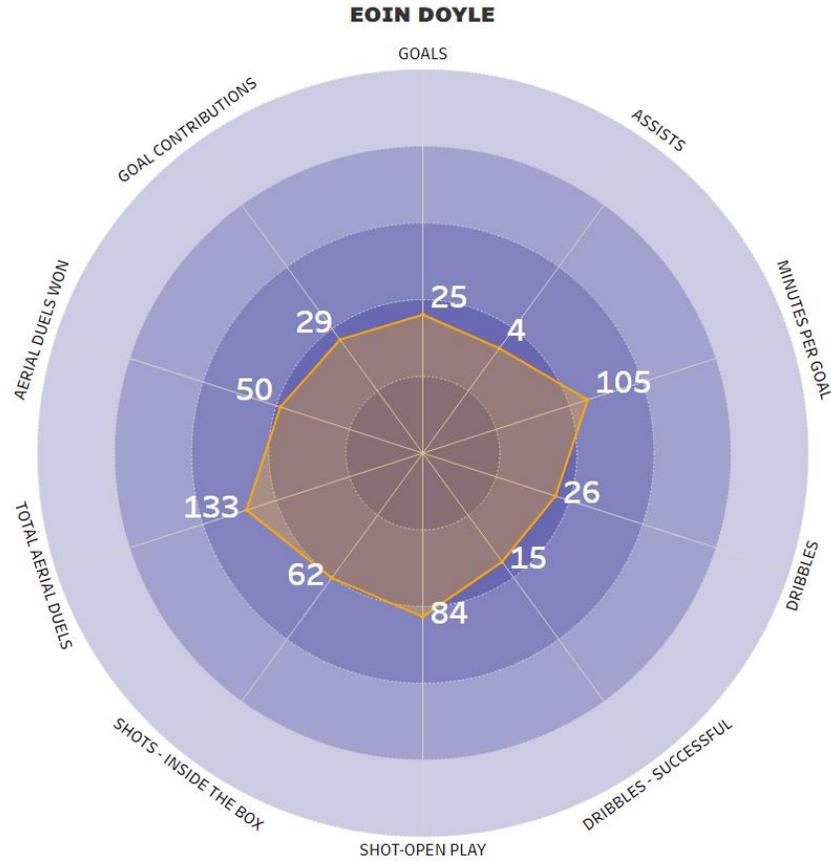
PLAYER NAME	MINUTES PLAYED	MINUTES PER GOAL	MINUTES PER ASSIST
IVAN TONEY	1464	61	293



WHO WERE THE MOST VALUABLE PLAYERS FOR EACH LEAGUE IN THE 2019/2020 SEASON?



Edinburgh Napier University



PLAYER NAME	MINUTES PLAYED	MINUTES PER GOAL	MINUTES PER ASSIST
EOIN DOYLE	2618	105	655



REFERENCES

Ermidis, G., Randers, M. B., Krstrup, P., & Mohr, M. (2019). Technical demands across playing positions of the Asian Cup in male football. *International Journal of Performance Analysis in Sport*, 19(4), 530–542.

<https://doi.org/10.1080/24748668.2019.1632571>

Lago-Peñas, C., Lago-Ballesteros, J., Dellal, A., & Gómez, M. (2010). Game-Related Statistics that Discriminated Winning, Drawing and Losing Teams from the Spanish Soccer League. *Journal of Sports Science & Medicine*, 9(2), 288–293.

Nahki Wells—Detailed stats | Transfermarkt. (2026). Retrieved 9 March 2026, from

<https://www.transfermarkt.co.uk/nahki-wells/leistungsdatendetails/spieler/173483/saison/2019/wettbewerb/GB2>