

# Are throw-ins important in soccer?

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[Link to materials](#)

## Abbreviated abstract:

Throw-ins are the most common set-pieces in soccer. Given their frequent occurrence, do throw-ins play any role in contributing to how well a team performs? This poster tries to determine whether throw-in performance correlates with a team's performance by taking  $xGD/90$  as a proxy.

## Related publications:

- Stone JA, Smith A, Barry A. The undervalued set piece: Analysis of soccer throw-ins during the English Premier League 2018–2019 season. *International Journal of Sports Science & Coaching*. 2021;16(3):830-839
- McKinley E. Game of throw-ins. American soccer analysis, <https://www.americansocceranalysis.com/home/2018/11/27/game-of-throw-ins>



# Question

- A throw-in is awarded to the opponents of the player who last touched the ball when the ball completely passes over the touchline, on the ground or in the air
- Throw-in are the most common set-piece events in soccer
  - Average of ~44 throw-ins per match
- However, throw-ins are not discussed as elaborately as other set-pieces like Corners or Free-kicks
- Previous study by McKinley<sup>1</sup> and Stone et al<sup>2</sup> looked at throw-in types and possession retention in MLS(15-18) and PL (18/19 )
  - Does possession retention still correlate with team performance?
- Which teams create chances from throw-ins ?  
Which teams retain the ball well after throw-ins ?

# Data

- Event data from English Premier League season 20/21 (provided by @prstrggr)
- For evaluating each throw-in, we look at each “*possession*” starting from throw-in
  - *How long does the team retain possession*
  - *How does the possession end*
  - *Where does the possession end*

# Limitations

- This study is limited only to PL 20/21. More data can lead to better conclusions
- As we do not have player positions, we cannot take into account pressing of opposition in throw-in sequences

# Methods

We define a “*possession*” starting from a throw-in as a sequence of open-play on-ball events. A “*possession*” can end when

1. Opposition are able to establish possession of the ball (Must perform at least 3 successful actions consecutively)
2. Any disturbance in play occurs (Shots , Corners , Fouls, Throw-in, Claims, GK pickup etc)

For each possession, we calculate

- the duration and
- Change in probability of scoring between end and start location of the possession as a proxy for evaluating ball progression from throw-in possessions

# Results (I)

| Team           | Throw-ins for | % ending in shots ▼ | Goals |
|----------------|---------------|---------------------|-------|
| Man City       | 656           | 14.18               | 12    |
| Chelsea        | 732           | 11.75               | 3     |
| Liverpool      | 811           | 10.97               | 8     |
| Man Utd        | 760           | 10.26               | 9     |
| West Ham       | 741           | 10.12               | 12    |
| Aston Villa    | 780           | 9.62                | 6     |
| Arsenal        | 663           | 9.35                | 7     |
| Leicester      | 738           | 9.21                | 9     |
| Fulham         | 784           | 8.67                | 4     |
| Leeds          | 809           | 8.53                | 3     |
| Sheffield Utd  | 750           | 8.27                | 2     |
| Brighton       | 769           | 8.19                | 4     |
| Wolves         | 735           | 8.16                | 3     |
| Newcastle Utd  | 724           | 7.73                | 5     |
| Everton        | 660           | 7.42                | 3     |
| West Brom      | 727           | 7.29                | 5     |
| Burnley        | 721           | 6.38                | 3     |
| Crystal Palace | 772           | 6.35                | 4     |
| Southampton    | 809           | 5.81                | 6     |
| Tottenham      | 750           | 5.73                | 5     |

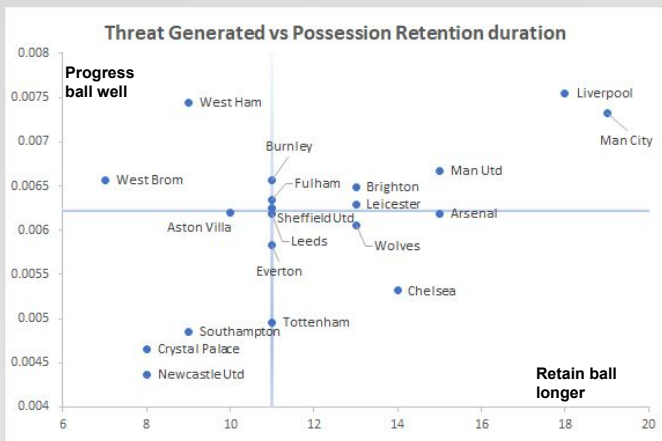
Offensive  
performance  
of Throw-ins

| Team           | TIs against | %ending in shots ▲ | Goals_A |
|----------------|-------------|--------------------|---------|
| Leicester      | 831         | 5.42               | 7       |
| Man City       | 532         | 5.64               | 2       |
| Chelsea        | 821         | 6.21               | 4       |
| Fulham         | 829         | 6.39               | 6       |
| Liverpool      | 613         | 6.53               | 5       |
| Brighton       | 752         | 6.78               | 2       |
| Leeds          | 807         | 6.82               | 4       |
| Arsenal        | 657         | 8.37               | 3       |
| Man Utd        | 648         | 8.49               | 5       |
| Everton        | 794         | 8.69               | 7       |
| Wolves         | 676         | 8.73               | 5       |
| Southampton    | 873         | 8.93               | 8       |
| Crystal Palace | 815         | 9.33               | 9       |
| Aston Villa    | 735         | 10.07              | 7       |
| West Ham       | 670         | 10.3               | 6       |
| Tottenham      | 656         | 10.67              | 4       |
| Newcastle      | 723         | 10.93              | 4       |
| Sheffield Utd  | 841         | 10.94              | 5       |
| West Brom      | 822         | 11.19              | 14      |
| Burnley        | 796         | 12.31              | 6       |

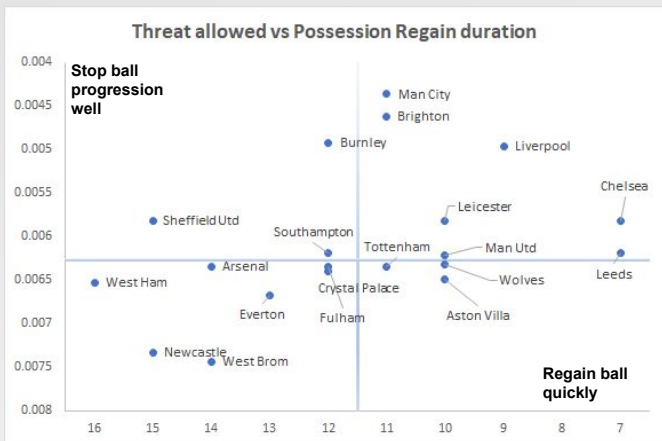
Defensive  
performance  
of Throw-ins

# Results (II) and Conclusions

## Throw-in Offensive performance



## Throw-in Defensive performance



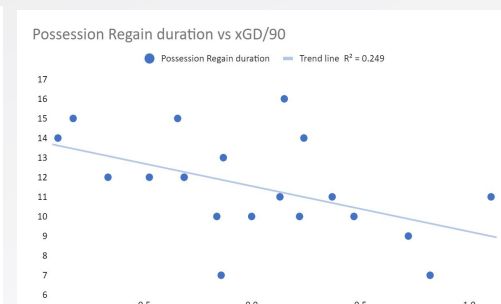
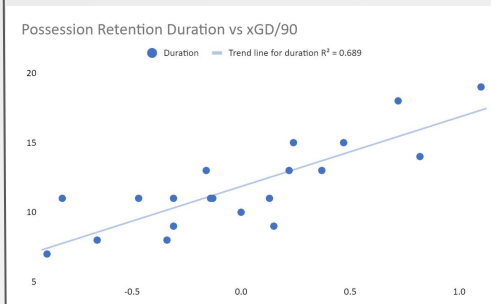
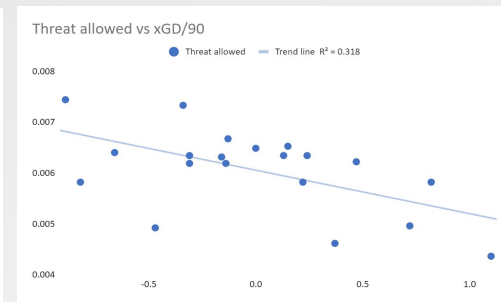
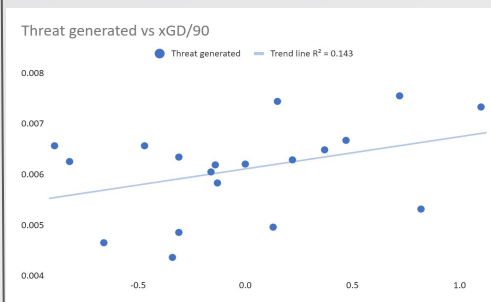
## KEY TAKEAWAYS:

### Attacking throw-ins:

- Possession Retention duration → strong +ve correlation with team performance
- Ball Progression → No significant correlation with team performance

### Defending throw-ins:

- Possession Regain duration → -ve correlation with team performance
- Ball progression → -ve correlation with team performance



Use xGD/90 as a marker for team performance