Breaking Point

Exploring the Last Decade of Injury Impact on the Men's Premier League

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Contents

Introduction

Injuries are an inherent aspect of football, and the Premier League, as one of the most physically demanding and competitive leagues in the world, experiences a significant number of injuries each season. With the introduction of new competitions, clubs are now navigating a more congested fixture schedule than ever before. Consequently, injuries have become an unavoidable reality for Premier League clubs and players.

Understanding the types and frequency of injuries is paramount for clubs seeking to optimise player performance and mitigate injury risks. By harnessing the power of data and trend analysis, clubs can identify patterns, trends, and risk factors associated with injuries. This report analyses the impact and severity of injuries on players and teams, examining factors such as age, club, injury type, position, and stadium.

Methodology

Data collection

Data was obtained from a sporting database. To maintain consistency and validity, stringent protocals were followed.

Data cleaning

The data cleaning process meticulously addressed inconsistencies and errors, ensuring the dataset's accuracy and reliability for subsequent analysis

Identify trends and patterns

This process facilitated informed decision making by identifying significant correlations and recurring themes within the data

Data categorisations

Data was organised and grouped based on predefined criteria, enabling efficient analysis and interpretation.

Methodology

This analysis spans the football seasons from 2014/15 to 2023/24, focusing on player injuries across various clubs. The injuries were assessed and recorded using two distinct methods, ensuring a comprehensive evaluation of the data.

The length of an injury was determined by calculating the time elapsed from the moment a player either left the field due to an injury or missed a match because of an injury, up until the match in which the player was officially included in the squad again. This approach allowed for an accurate assessment of the recovery period and the impact on the player's availability.

Although many players are versatile and capable of playing in multiple positions, each player's position was classified based on their primary role within the team. This simplification ensured consistency in the analysis, focusing on where the player spent the majority of their playing time.

Two distinct strategies were employed to record injuries:

a. Direct Injury Reporting: This method involved recording injuries directly from an online database, noting when a player was officially listed as injured.

b. Substitution-Linked Injury Reporting: In this method, injuries were identified when players were substituted off the field, with the substitution linked to an injury.

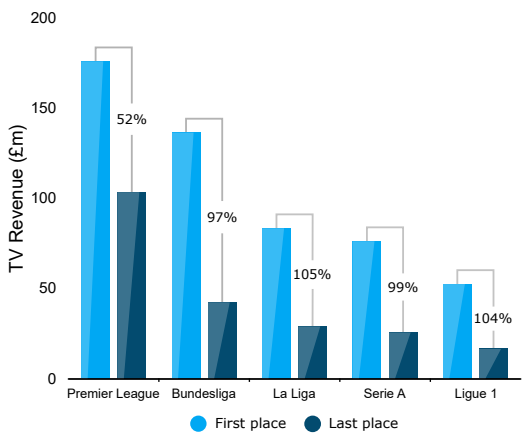
This strategy provided an additional layer of data, capturing instances where injuries might not have been immediately reported but were evident from the player's departure from the game.

Injuries were included only if the player had participated in at least one minute of play for their club during the respective season.

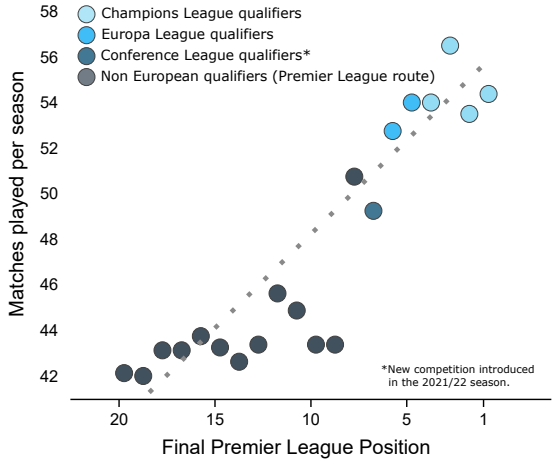
In cases where a player missed an entire season due to injury, they were still included in the analysis if they had played at least one minute in the season preceding or following the missed season. This criterion ensured that long-term injuries and their impacts were adequately captured.

Results

Investment



Performance



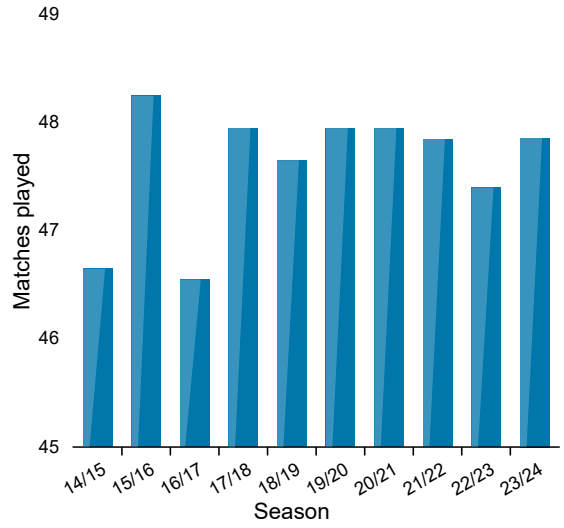
Injuries

Premier League Landscape

The Premier League adheres to a set schedule of 38 matches per season, wherein 20 teams face each other twice – once at home and once away. However, Premier League clubs are not confined to domestic fixtures alone. Many also engage in additional tournaments such as the FA Cup, League Cup, and European competitions like the UEFA Champions League and Europa League.

Due to these additional commitments, Premier League clubs typically participate in significantly more matches than the standard 38 league games per year. In recent seasons, Premier League clubs consistently play nearly 48 games per season.

Premier League clubs are playing more matches due to their deeper runs in knockout competitions. This success is fueled by significant investments, expanded squads, and their ability to attract top-tier talent.

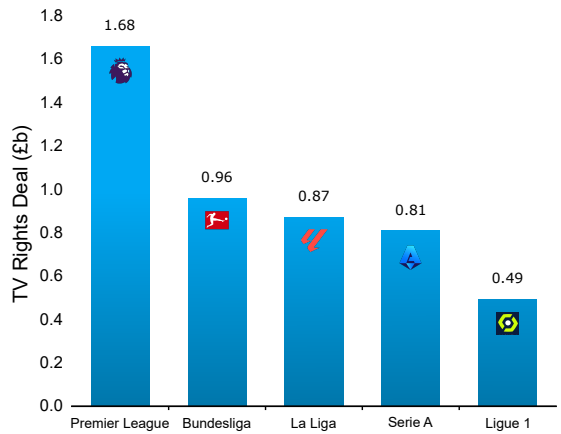


Investment in Premier League

A recent TV rights deal, spanning a four-year period until 2028/29, is set to generate a total revenue of £6.7 billion for the Premier League. This new agreement averages £1.675 billion per year, slightly lower than the previous deal's £1.713 billion average. Despite the slight decrease in average annual TV income, the total revenue from the new deal remains significantly higher than comparable deals in other European leagues.

What sets this deal apart is its sheer scale, particularly when compared to Italy's Serie A, where the Premier League's revenue surpasses that of Serie A by more than double. This massive financial injection further solidifies the Premier League's position as the wealthiest football league in the world.

The influx of such significant revenue ensures that Premier League teams can continue to outspend their European counterparts in the transfer market, enhancing their competitive edge in both domestic and international competitions.

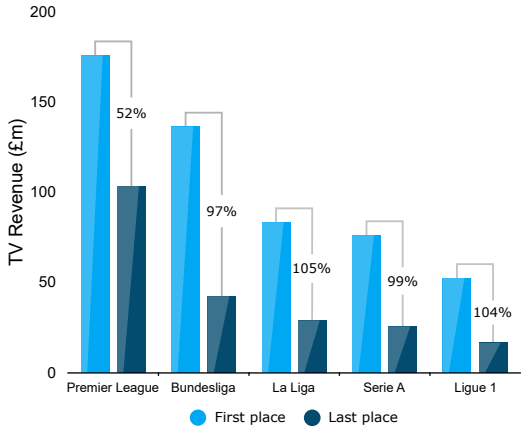


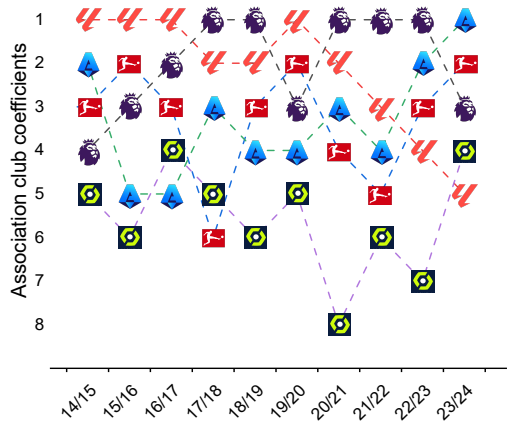
Results

Among these huge TV deals, the prize money is disproportionately split based on the finishing position of each team every year. The Premier League is the only domestic league where the percentage difference in prize money between the first-placed team and the last-placed team isn't above a 95% difference. The Premier League sits roughly around 52%, whereas La Liga (105%), Bundesliga (97%), Serie A (99%), and Ligue 1 (104%) all allocate a significant proportion of winnings to higher-placed teams.

This reflects on the strength of the league; with more money shared among the smaller clubs, the league is more competitive.

The Premier League leads the league coefficient with an average finish of 2, followed by La Liga (2.1), Bundesliga (3.3), Serie A (3.4), and Ligue 1 (5.7). The league standings reflect the TV rights deals and how the funding is distributed across the league teams.





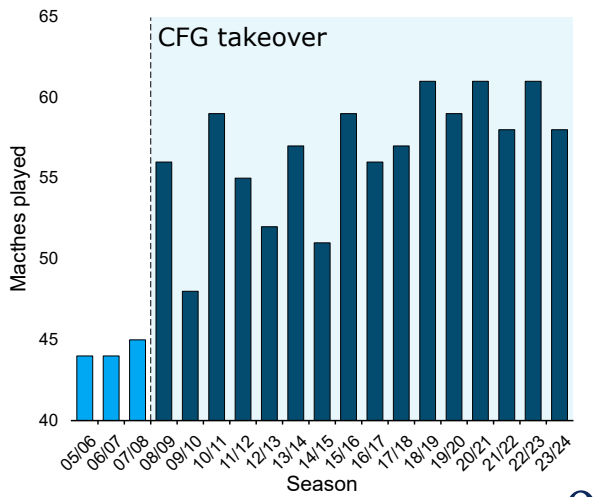
Owner Investment

Another source of investment is from their respective owners. This enhances clubs ability to build stronger and deeper squads, capable of competing at the highest levels of domestic and international football.

Wealthy owners, attracted by the prestige and global reach of the Premier League, often inject significant capital into their clubs, enabling substantial investments in player recruitment, training facilities, and youth development programs.

Manchester City is an example of this. Since their takeover by City Football Group (CFG) in 2008, they have seen an increase in trophies won compared to their previous 120-year existence.

Since their major financial investment, Manchester City now regularly competes in nearly 60 games per year, a significant increase from the 45 matches they typically played before the takeover. This expanded schedule has coincided with a dramatic rise in the club's trophy haul, reflecting their success across multiple competitions.



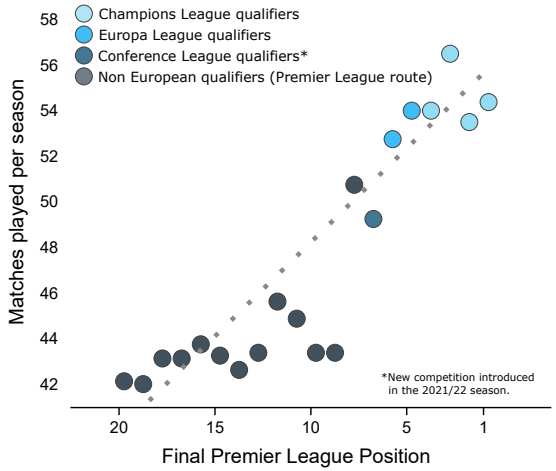
Benefits of Investment - Europe

The allure of prize money, broadcast revenue, and sponsorship opportunities associated with these tournaments incentivises clubs to prioritise success on multiple fronts.

Moreover, success in domestic and international tournaments not only enhances a club's reputation and prestige, but also generates significant financial returns. Advancing to the latter stages of cup competitions, and progressing through the group stages of European tournaments can yield substantial prize money and broadcasting rights revenue, further enriching the club's value.

Teams that finish higher in their domestic league qualify for European competitions, highlighting the correlation between league position and the number of matches played.

From the 2024/25 season, the number of matches is expected to increase with the introduction of a league-style format in European competitions. This format will generate more matches, and consequently, more revenue than ever before. The initiative appears to have been driven by lower-performing European domestic leagues, which have struggled to generate sufficient TV revenue to remain competitive. It bears similarities to the failed European Super League proposal from 2020.



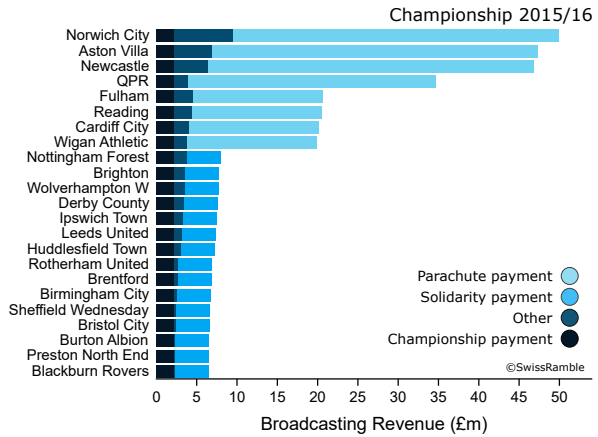
Benefits of Investment - Domestic

Investment in the domestic landscape is not dissimilar from the European one. The gap between the Premier League and the second division, the EFL Championship, is described as a cliff edge. For example, the bottom club in the Premier League has central receipts of £96 million, whereas the top club in the Championship earned just £8 million. The disparity between the two leagues has created a vast difference between the respective strengths of each division.

In recent years, the Premier League introduced parachute payments to stop the ring-fencing of the top division.

These parachute payments have resulted in the same teams alternately jumping between the first division and the second division. Fulham, for instance, has alternated between these divisions for five seasons between 2017/18 and 2022/23.

With parachute payments, relegated teams have the ability to retain their Premier League-quality squads, often resulting in promotion straight back to the top division when competing against weaker opposition in the second division.Effectively, the main money stays within around 28 teams. The other non-parachute teams are left to fend with the Championship media and revenue money, increasing the 'gap' between that and the Premiership year on year.

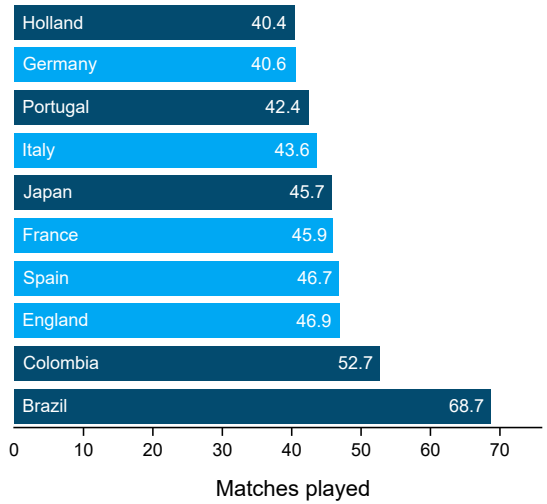


Benefits of Investment - Games

For a number of years, through various investments, the Premier League has started to distance itself from other clubs participating in either domestic competitions and, to a lesser degree, European competitions. The difference has allowed top-flight teams to progress further into the latter stages of domestic and European competitions. This is highlighted by the fact that a second division team hasn't participated in the final of the FA Cup, England's premier domestic cup competition, for several years.

The Premier League edges other domestic competitions around Europe in the number of matches played. At an average of 46.9 matches per campaign, this beats Spain and France, which average 46.7 and 45.9 matches, respectively. Across the world, the English top division comes second behind Brazil and Colombia, which see an average of 68.7 and 52.7 games played each domestic year.

This can ultimately be linked back to the strength of English top-flight football, which competes further into European competitions and their own domestic competitions.



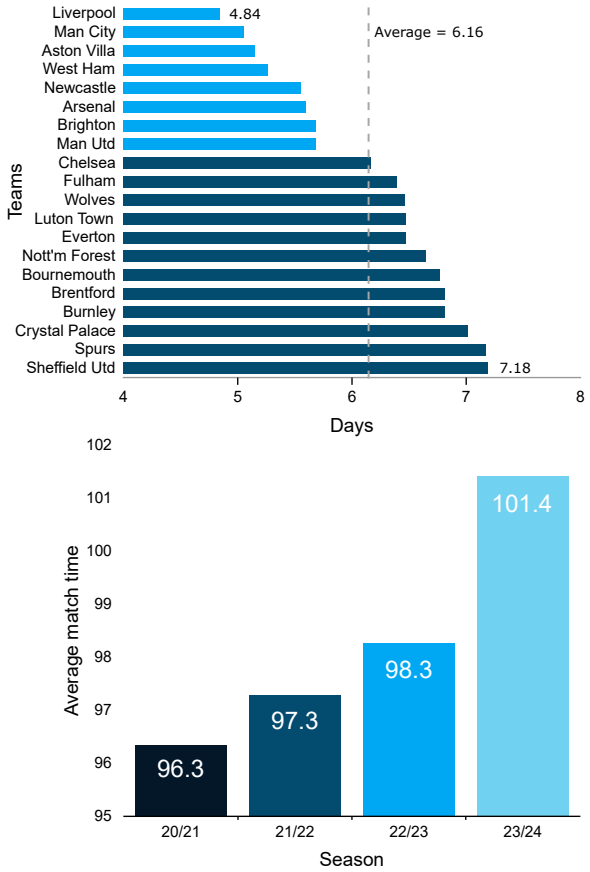
Benefits of Investment

More successful and higher-finishing teams in the Premier League play more matches compared to teams near the bottom of the league. For instance, the team finishing first in the Premier League plays, on average, nearly 55 matches, compared to the team finishing at the bottom, which plays around 42.

As a result, the rest period between games decreases significantly for more successful teams. In the 2023/24 season, Liverpool's average rest period was 4.84 days, compared to Sheffield United, which had an average rest period of 7.19 days between games.

In addition to having less rest between matches, each individual match has become longer compared to previous seasons.

The average match length has increased in recent years, with a significant change observed in 2023/24. The Premier League introduced a new directive to pause the match clock during substitutions and stoppages, resulting in significantly increased additional time. In 2020/21, the average match length was 96.34 minutes, whereas in 2023/24, it increased to 101.42 minutes.

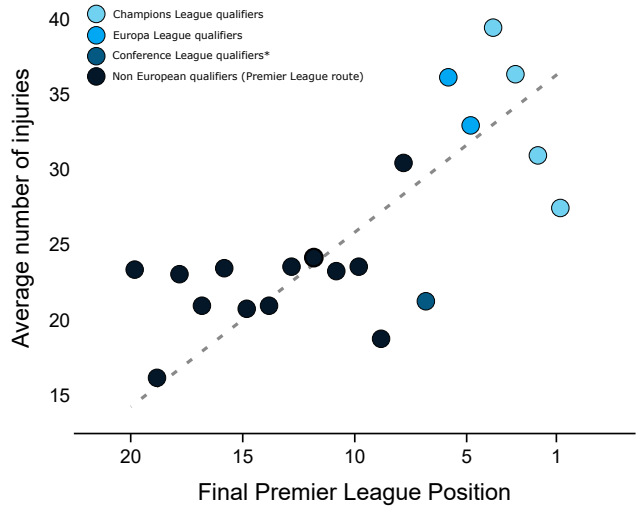


Investment Conclusion

The Premier League has witnessed substantial investment in recent years, leading to an increase in the number of matches teams play in a single season. This surge in fixtures has had a significant impact on squad rotation, with teams needing to utilise more players due to shorter rest periods between games.

As the rest periods decrease and match durations extend, the likelihood of injuries varies from team to team, depending on the intensity of their schedule. This next section will delve into the impact of these injuries.

There is a noticeable trend linking the number of injuries to a team's final position in the Premier League table, reinforcing the correlation between the number of matches played and the strain on players. Consequently, this affects the number of players teams must rely on throughout the season, highlighting the importance of depth in the squad to cope with the demands of an increasingly congested fixture list.



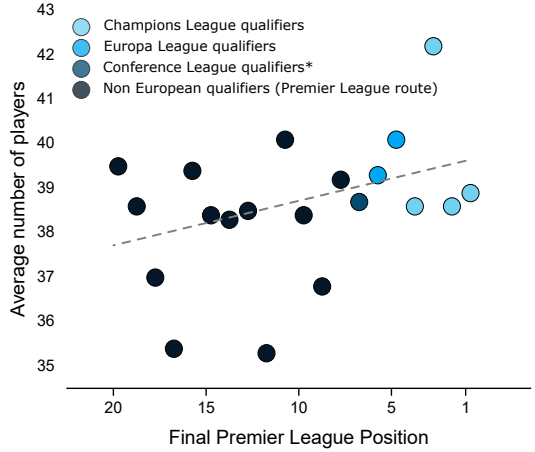
Overall Injury Trends

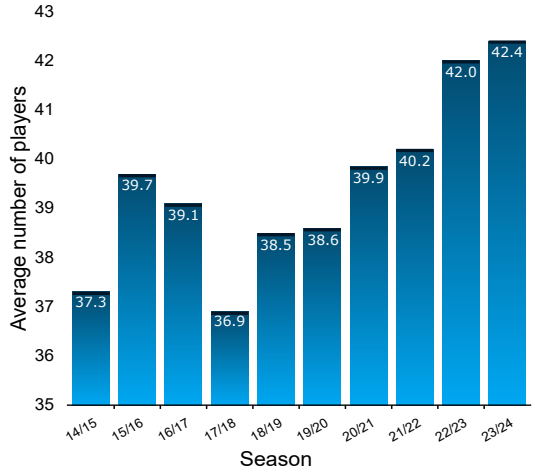
Factors assessed in this report include the number of matches played, rest period between these matches, and the length of matches. These factors ultimately result from more money present in the domestic league, as outlined with Manchester City and the Premier League.

The result of all of these factors, and more matches, have a devastating impact on injuries among Premier League clubs. The impact of more match participation can be exposed with the number of players who have made at least one Premier League appearance in any given season.

While there is no clear trend between final league position and the average number of players used in a campaign, a slight weak positive correlation can be observed.

The number of players used each season in the Premier League has been steadily increasing, with 42.4 players used in 2023/24 compared to 37.3 in 2014/15. However, it is noteworthy that the number of injuries hasn't followed the same trend. In fact, interestingly the number of injuries per season spiked between the 2018/19 and 2020/21 seasons.



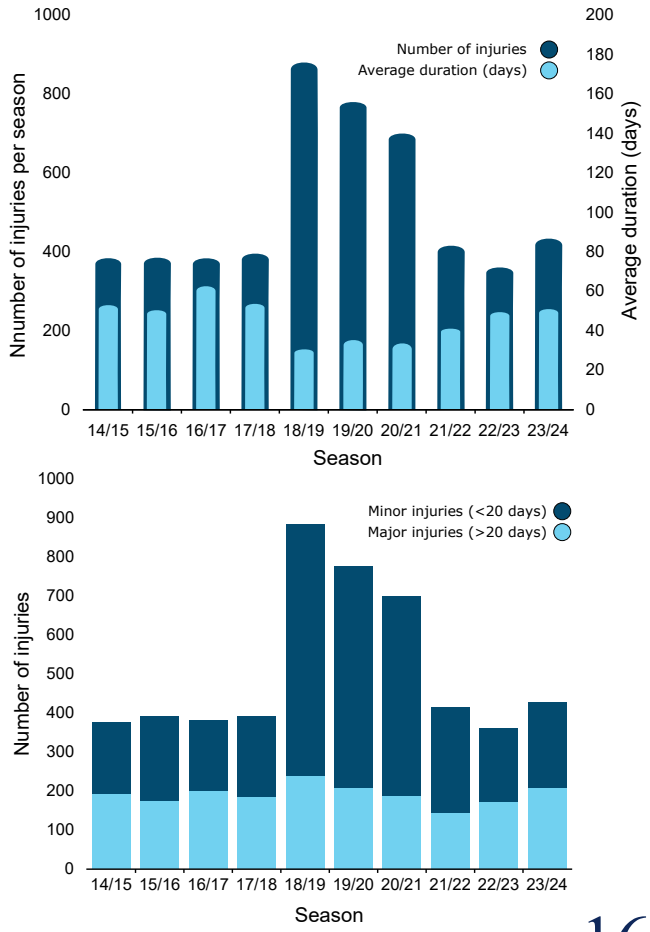


Results

Although the number of injuries increased between 2018/19 and 2020/21, the average number of days the injury occurs over actually decreased. Interestingly, the number of serious injuries, classified as an injury lasting longer than 20 days, remained steady over that same period.

During the 2019/20 and 2020/21 seasons, a viral disease swept across the world, causing a significant rise in quarantine periods, which swept across the world, causing a significant rise in quarantine periods, which could explain the rise in injuries over this period. However, the 2018/19 season was not affected by quarantine.

This result indicates that the increase in injuries in these seasons is occurring due to off-field injuries. The injury increase correlates with the COVID-19 injuries, which would classify as off-the-field injuries.



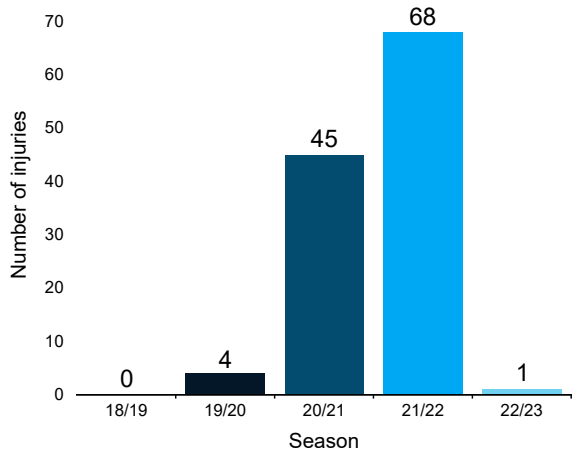
Results

The number of injuries classified as 'Illness' saw a significant increase between the 2016/17 and 2022/23 seasons. Initially, these injuries were minimal, with just 1 case in 2016/17, but they escalated to 77 cases in both 2019/20 and 2020/21, before dropping back to 6 in 2022/23. Similarly, the number of recorded bruises and minor injuries fluctuated, with notable spikes and drops during the same period.

A closer examination reveals that injuries related to COVID-19 or quarantine played a significant role in this trend. These cases, which were non-existent in 2018/19, surged to 68 at the peak in 2020/21.

It's important to recognise that COVID-19 and quarantine-related injuries could be grouped under the broader 'Illness' category, which accounts for the sharp increase during those seasons. Notably, no COVID-19 or quarantine cases were reported in the seasons before or after this peak, specifically in 2019/20 and 2022/23.

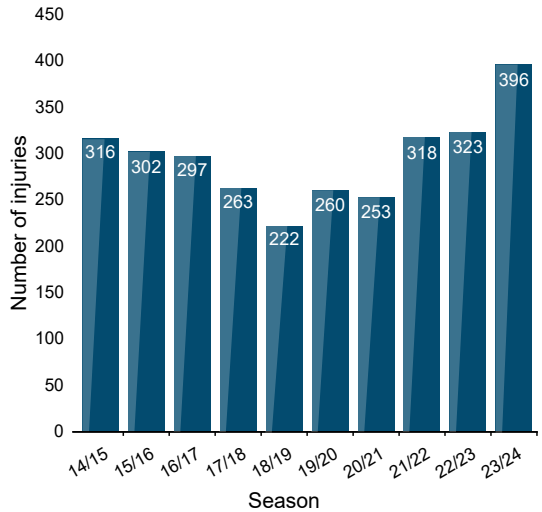
Season	Illness	Bruises
16/17	1	15
17/18	6	26
18/19	8	194
19/20	14	115
20/21	77	140
21/22	77	19
22/23	6	25



As discussed previously, injuries were assessed in various ways, such as players who left the field with an injury tag and players who have an injury attached to their profile.

Interestingly, the number of players who left the field with an injury tag during substitutions does not correlate with the spike between the 2018/19 and 2021/22 seasons. In fact, there is actually a dip in these seasons of players leaving the field injured. Backing up the claim that majoirty of these injuuries occur off-field or are minor injuries.

In the 2023/24 season, over 400 players left the field due to injury, a significant increase compared to fewer than 250 in the 2018/19 season. This spike in injuries has drawn considerable media attention, as the coverage often focuses on visible incidents, making the public more aware of them. However, the public tends to suffer from recency bias, often forgetting events from earlier years. Aside from the notable spike in 2023/24, the frequency of injuries in recent seasons, including 2022/23, is actually quite similar to that of the 2014/15 season.



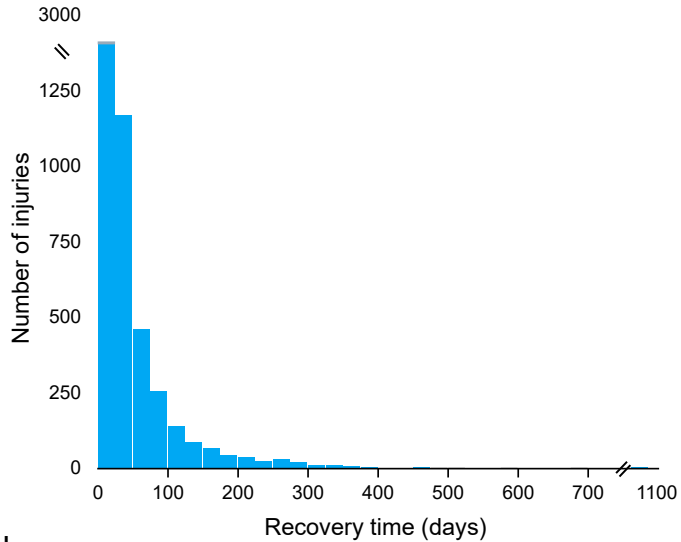
Analysis of injury data

The relationship between the number of injuries and the duration of recovery is a compelling aspect of injury analysis. Most injuries tend to resolve within 30 days, which is reflective of the nature of many minor injuries, including those related to COVID-19, that were classified under this short-term category. As the length of recovery time increases, the number of injuries shows an exponential decline. This trend suggests that while short-term injuries are quite common, long-term injuries are far less frequent.

However, the data also reveals outliers that significantly extend the x-axis, reaching beyond 1,000 days of recovery time.

These extreme cases, although rare, highlight the severe impact that certain injuries can have on a player's career. A notable example is Sheffield United's Jack O'Connell, who suffered a devastating knee injury that sidelined him for 1,012 days. O'Connell, who was 26 at the time of the injury—typically the peak of a footballer's career—was unable to play for nearly three years, only making his return to the pitch in 2023.

This case underscores the significant influence that age and injury severity can have on recovery time.



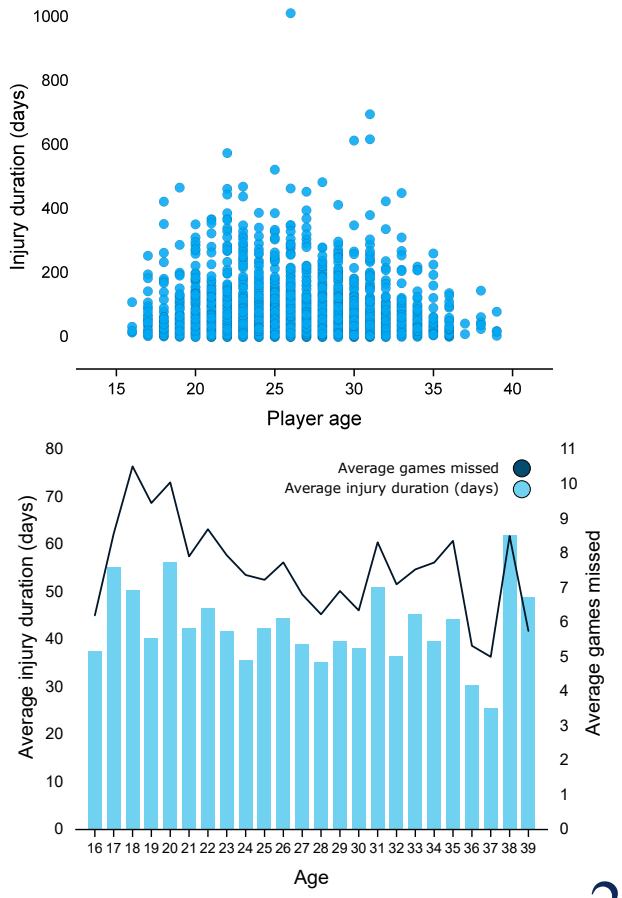
Age and injuries

The theory that younger players recover more quickly from injuries compared to their older counterparts is widely accepted. One indicator of this is the percentage of injuries classified as illness, which tends to be higher in older players. For instance, 6% of injuries in 30-year-olds are classified as illness, compared to just 2% for 20-year-olds. This suggests that as players age, they may become more susceptible to health-related issues that could sideline them.

However, when we look at the average number of games missed due to injury, the data presents an interesting contrast. Players under 21 miss an average of 9 games per injury, whereas players over 30 miss only 7 games on average. This seems counterintuitive to the idea that younger players recover faster.

One possible explanation for this discrepancy could be that younger players are more cautiously managed by their Premier League clubs.

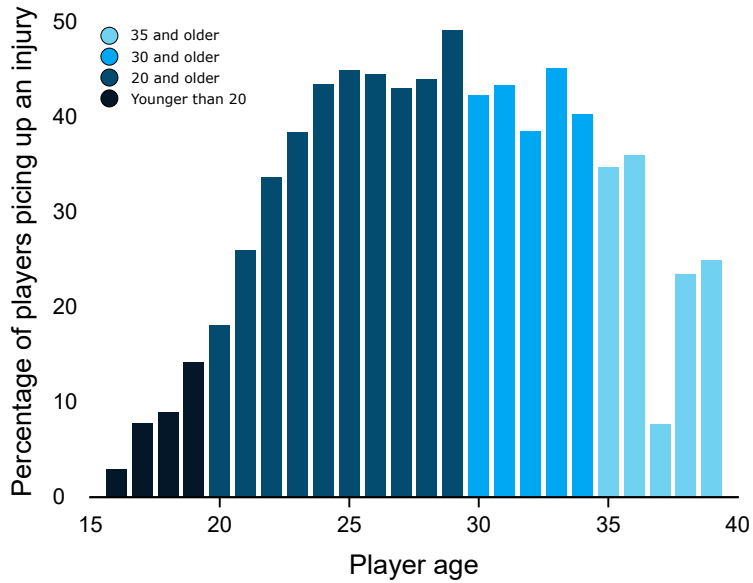
However, the data does not fully support this theory. The analysis suggests that the difference in recovery time might not be solely due to club management practices but could also be influenced by the nature of the injuries themselves or the physical resilience of players at different ages.



Results

While there is no direct correlation between a player's age and their recovery time, there is a clear relationship between age and the likelihood of sustaining an injury. Younger players are generally less prone to injuries compared to their older counterparts, who face a higher risk of getting injured. Players under 20 have less than a 10% chance of injury, whereas players aged 25 and over have a more than 40% chance of injury. This trend highlights the increased vulnerability of older players. To accurately assess this trend, the data was carefully adjusted to include only unique injury instances for each player within a given season.

This means that for each season, the analysis focused on whether a player experienced at least one injury, providing a more straightforward comparison. This method allowed for a clear evaluation of injury incidence relative to the total number of players participating each season. The findings underscore the importance of considering age-related risks when managing player health and developing strategies to minimise injuries across the squad.

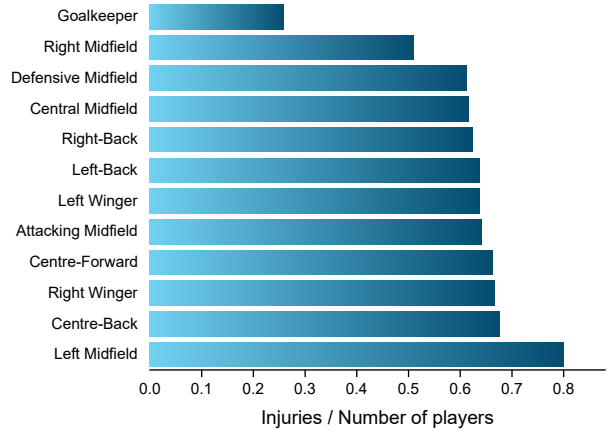


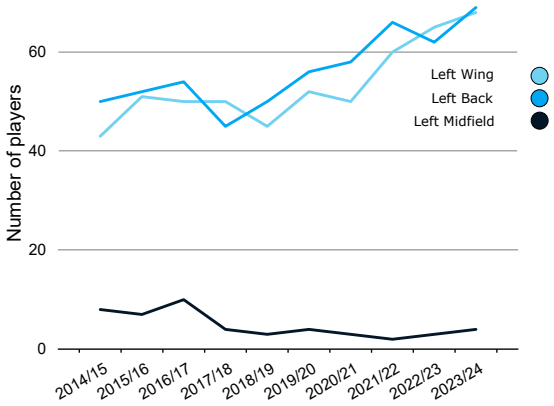
Position analysis

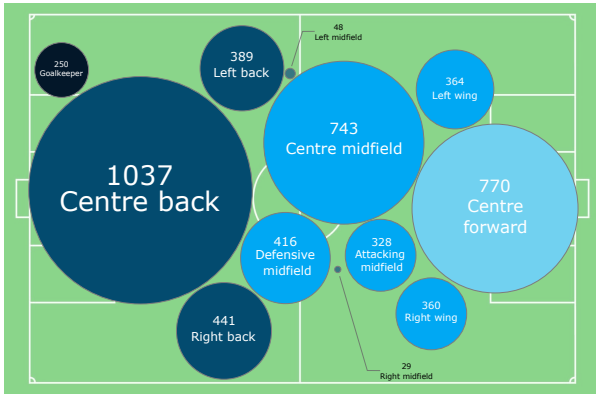
The number of injuries over a given time can be analysed, but also the number of injuries per position can also be examined. Over more recent years, the number of teams using a traditional 4-4-2 formation has decreased. Instead, teams are using a 4-3-3 or equivalent. This can be highlighted with the number of players playing 'Left midfield' decreasing compared to the number of players playing 'Left wing' increasing.

The pitch highlights the number of injuries in a given position, and more importantly the number of injuries per players who played that position.

As expected, 'goalkeepers' have the lowest number of injuries at 0.26 per player, with 'left midfield' the highest at 0.8 per player. With the low number of players listed as 'left midfield', this can be considered less significant. Therefore, Centre-back has the next highest at 0.68 per player.







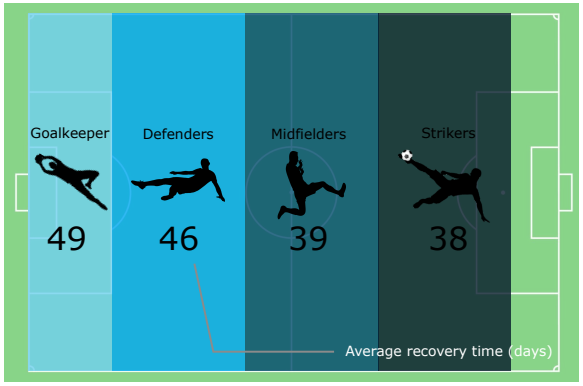
Results

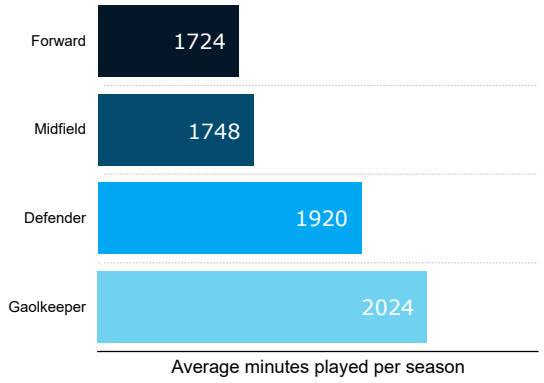
By grouping the player positions into larger categories, the average recovery time per position can be analysed. It is interesting to learn that forwards have the lowest recovery time per position. However, it is notable that they also have the lowest minutes played per season.

Forwards, who are often involved in high-intensity sprints and frequent directional changes, might experience less severe injuries that require shorter recovery periods. This contrasts with defenders and midfielders who, due to their roles, may face more physically demanding situations such as tackles and aerial duels, potentially leading to more severe injuries and longer recovery times.

Additionally, forwards may have lower minutes played due to strategic substitutions. Managers often rotate forwards to keep them fresh and reduce the risk of injuries, given their crucial role in scoring goals. This rotation can contribute to their overall lower injury recovery times and fewer minutes played.

Do these more demanding challenges with defenders for instance correlate to injury type?





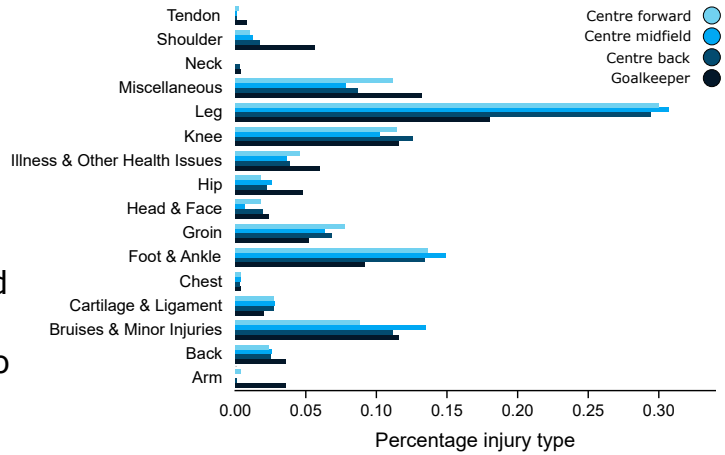
Injury type analysis

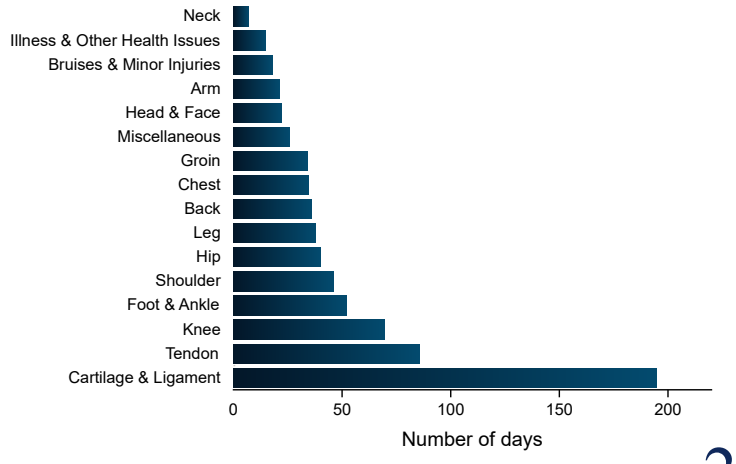
There is no significant variation in the type and frequency of injuries across the various outfield positions; all positions tend to have a similar rate of injury occurrence and a comparable percentage chance of sustaining an injury. Whether a player is a defender, midfielder, or forward, the likelihood of injury and the types of injuries they experience are relatively uniform across these roles.

However, goalkeepers present a slight exception to this trend. They have a somewhat higher likelihood of suffering arm or shoulder injuries and a lower likelihood of leg injuries.

This difference is understandable given the nature of the goalkeeper's role, which involves frequent diving, stretching, and using their upper body to make saves. In contrast, because goalkeepers are less involved in tackles and physical contests that typically lead to leg injuries for outfield players, their chances of sustaining such injuries are reduced.

This distinction in injury patterns highlights how the specific demands and movements associated with each position can influence the type of injuries players are more likely to experience.



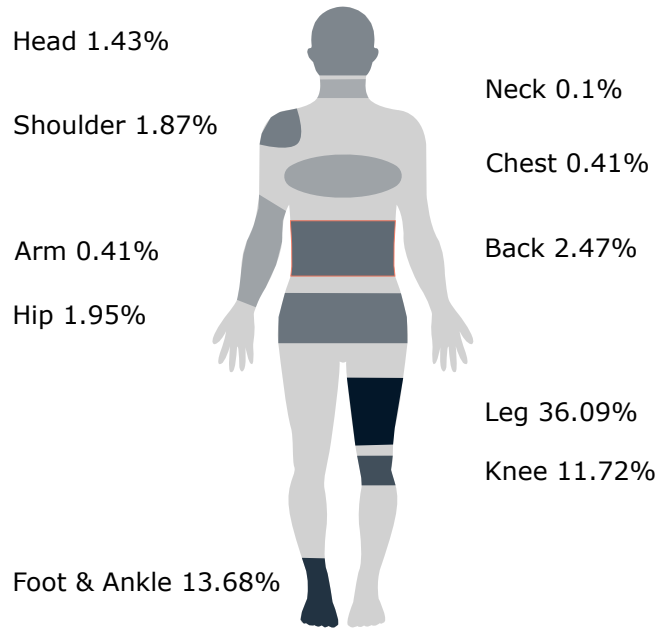


Injuries were grouped by major body parts to determine which areas are most frequently affected. However, some injuries were classified as ligament issues without specifying the exact body part involved. While many of these could likely be knee injuries, they were excluded from the analysis to avoid assumptions. Additionally, injuries that lacked specific details about the affected body part were also omitted.

Other types of injuries, such as those categorised as 'illness', 'bruises', and 'miscellaneous', were not included in the primary body part analysis but still represent a notable portion of the overall injury data.

These categories accounted for 4.01%, 11.68%, and 14.18% of all injuries, respectively.

Although they were not the focus of the body part breakdown, these injuries are significant and highlight the range of issues players may encounter beyond the more commonly analysed physical injuries. This approach provides a clearer picture of the various risks players face, extending beyond the typical areas of concern.

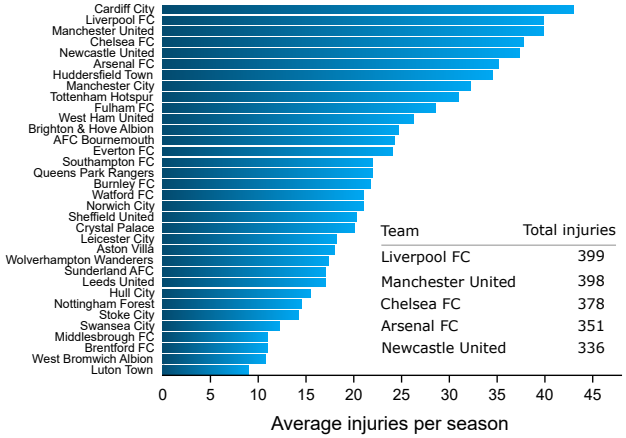


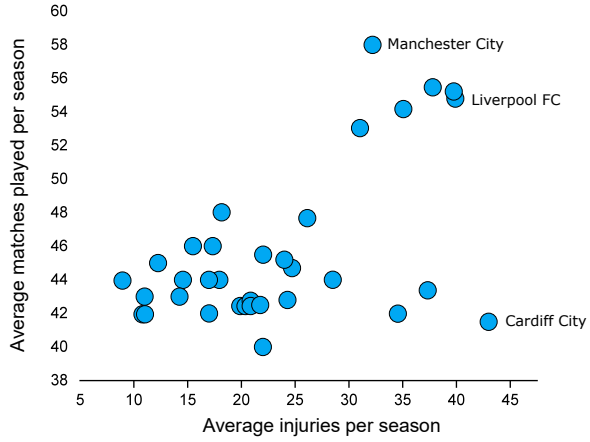
Injury count

By closely examining the injuries that occur on the field during matches, along with identifying the teams players were representing at the time, we can calculate the number of injuries each team experiences over the course of a season. This analysis provides a clear picture of how frequently players from specific teams are getting injured during competitive play.

However, it's important to note that not all Premier League teams have spent the same amount of time in the top division leading to fewer seasons of play at this level. To account for these differences, the average number of injuries per team has been calculated, providing a more balanced view that considers the varying lengths of time spent in the Premier League.

Additionally, the relationship between the number of matches played each season and the number of injuries sustained has been explored. The analysis reveals a slight trend suggesting that a higher frequency of matches may lead to an increase in injury rates. This observation is important for understanding the impact of a demanding schedule on player health and highlights the need for careful management of player workloads to mitigate the risk of injuries.



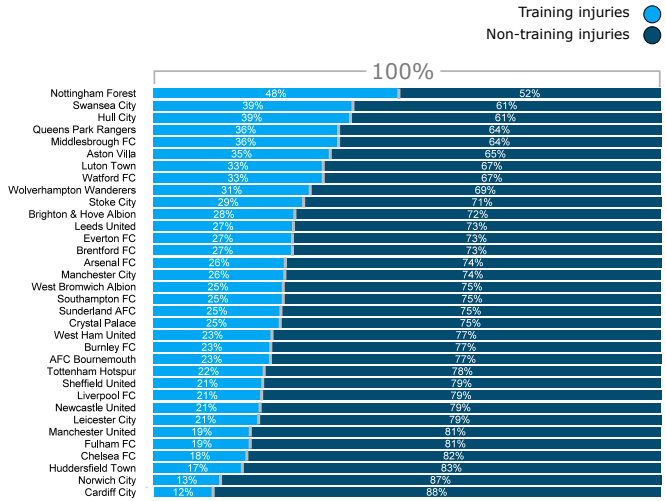


Players Injured in Training

By comparing injuries that occur during matches (in-game injuries) and the total number of injuries reporte,it is possible to calculate and identify the remaining injuries as likely occurring during training or other off-field activities.

Through this analysis, it has been found that Nottingham Forest has the highest proportion of these 'training' or 'off-field' injuries, with 48% of their total injuries falling into this category. This rate is significantly higher than any other team, with the next highest at 39%.

There also appears to be a slight correlation between the relative size of a Premier League club and the percentage of training-related injuries. Notably, none of the so-called 'Big 6' teams are in the bottom third in terms of training injuries, which could suggest that these larger clubs benefit from improved training methods, better facilities, and more advanced injury prevention programmes. This correlation implies that smaller clubs may be more prone to training injuries, possibly due to having less access to the resources and technology that help reduce such risks.

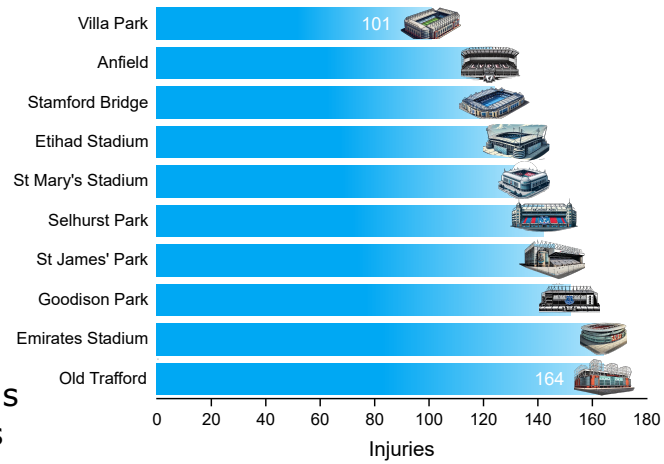


Results

On-field injury records, which include details of the stadium where the injury occurred, allow us to assess the impact of different grounds on player injuries. To improve accuracy, a more effective approach is to examine substitutions where players leave the field with an injury tag. By focusing on these specific instances, we can more accurately identify which stadiums are associated with a higher incidence of injuries.

Over a ten-year assessment period, it is unsurprising that stadiums duch as Old Trafford and the Emirates Stadium record the highest number of injuries.

These venues host a large number of matches each year, which naturally contributes to the higher frequency of injuries reported at these grounds. However, this analysis goes beyond just the number of matches played; it helps to identify environmental or situational factors unique to these stadiums that may contribute to the occurrence of injuries. Whether it's the pitch conditions, the intensity of the matches typically played at these venues, or other factors, understanding these dynamics is crucial for developing strategies to reduce injury risks at specific grounds.

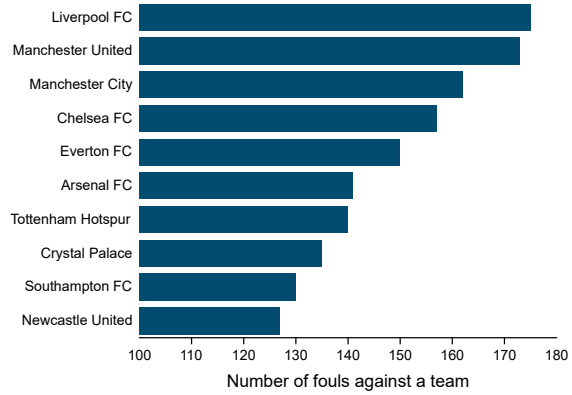


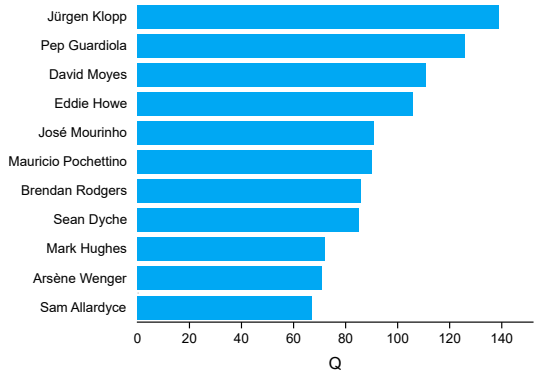
Manager tactics

By assessing an injury factor that considers players leaving the field with an injury tag, we can gain insights into the number of injuries associated with specific teams and managers. This method enables us to analyse whether certain Premier League clubs are linked to a higher incidence of injuries compared to others.

For instance, Liverpool, under the management of Jürgen Klopp, have recorded the highest number of fouls committed against them. However, this is partly explained by their consistent presence in the Premier League throughout the period and their frequent progression to the latter stages of both domestic and European competitions. This extended participation results in a larger number of matches played, naturally increasing the opportunity for fouls and injuries to occur.

By correlating these factors, we can better understand how the style of play, intensity of matches, and managerial strategies might contribute to the overall injury rates within different teams.





Results

To account for the number of matches played and determine which managers have the highest number of injuries against them, we can examine the percentage chance of any player picking up an injury during a match, where 1 indicates a certain chance of an injury occurring and 0 indicates no chance of an injury. Some managers have overseen only a small number of matches, which provides unreliable data, so instead, the injury chance is calculated for managers who have managed 20 games or more.

The number of games was prorated across the time period, based on the total matches managed and the number of days in charge, to provide a representative figure.

Among managers with a minimum of 20 games, Ange Postecoglou ranks the highest, with a 0.51 chance of an injury occurring in any match played against his team. This high rate might be due to improved injury reporting over recent seasons. However, John Carver, who managed 20 games and recorded 10 injuries in 2015, also ranks high, suggesting that factors other than just reporting improvements could be influencing these figures.

Conclusion

The Premier League's evolution into the world's most financially robust football competition has had profound implications on both the structure of the league and the health of its players. The influx of capital from lucrative TV deals and significant investments by wealthy club owners has enabled Premier League teams, particularly those at the top, to build stronger squads capable of competing across multiple competitions. Manchester City serves as a prime example of how financial backing can translate into sustained success on both domestic and international fronts.

As Premier League teams navigate their busy schedules, the demands of playing in multiple competitions have resulted in a higher number of matches per season. The introduction of new competition formats and extended calendars, especially from the 2024/25 season onwards, will only amplify these demands. Teams are now facing shorter rest periods between games, leading to an increased risk of injuries. This is particularly concerning as it not only affects player performance but also the long-term sustainability of teams competing at the highest levels.

The analysis of injury trends in the Premier League reveals a nuanced picture. While the number of injuries spiked during the pandemic years, driven largely by off-field factors like quarantine and illness, the overall trend shows a correlation between the number of matches played and injuries. Also, the physical demands placed on players in certain positions, such as defenders and midfielders, make them more vulnerable to severe injuries that require longer recovery periods.

The disparity in injury rates across teams also highlights the importance of quality training facilities and injury prevention strategies. Clubs with better resources tend to experience fewer training-related injuries, suggesting that investment in player welfare can mitigate some of the risks associated with an intense match schedule. Furthermore, the environment in which these matches are played—ranging from the stadium conditions to the style of play dictated by managers—can also influence injury rates.

In conclusion, while the Premier League's financial power has driven the league to unprecedented levels of global competitiveness, it has also introduced significant challenges related to player health and sustainability. The future success of Premier League teams will depend not only on their financial investments but also on their ability to effectively manage player fitness and mitigate the risks associated with a congested match calendar. Balancing these factors will be crucial for maintaining the league's reputation as the world's premier football competition.