



College of Human Medicine
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Lower Extremity Injuries and Their Impact on European Soccer: A Systematic Review

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Overview

This systematic review analyzed 23 studies on return to play (RTP) and performance after lower extremity injuries in European football. MCL, meniscus, and patellar injuries had the lowest RTP rates (~70%). ACL and Achilles injuries had the longest recovery times and most significant performance declines. ACL injuries were linked to earlier retirement and reduced playing time. Patellar injuries led to attackers playing ~1200 fewer minutes per season post-injury. Overall, ACL, Achilles, and patellar injuries had the greatest negative impact on RTP and performance.

Introduction

Lower extremity injuries are highly prevalent in European soccer and are a leading cause of lost playing time, reduced performance, and career disruption. These injuries often require extended rehabilitation and may lead to long-term declines in athletic output, especially in high-demand sports environments. Financial consequences are also substantial, affecting both players and organizations due to missed games, medical expenses, and contract impacts. Despite growing literature on injury outcomes, few studies provide a comprehensive comparison of how specific lower extremity injuries affect return-to-play and performance in European football athletes. Additionally, standardized metrics to evaluate recovery and performance post-injury remain limited, making it difficult to compare outcomes across studies and sports. This systematic review aims to quantify and compare return-to-play (RTP) rates, RTP times, and post-injury performance metrics in UEFA athletes.

Methodology

Search Strategy:

1. UEFA AND Injury AND Return
2. Soccer AND Football AND injury AND Return To play
3. Premier League AND Football AND Injury AND Return
4. Ligue 1 AND Injury AND Return
5. La Liga AND Injury AND Return
6. Serie A AND Injury AND Return
7. Bundesliga AND Injury AND Return
8. Soccer AND Injury AND Return
 - a. Soccer AND Achilles
 - b. Soccer AND ACL
 - c. Soccer AND Calf
 - d. Soccer AND Hip
 - e. Soccer AND Knee
 - f. Soccer AND Leg
 - g. Soccer AND Foot
 - h. Soccer AND Toe
9. Professional soccer AND Football AND Injury, AND Return to Play
10. Soccer AND Football AND Injury AND Performance

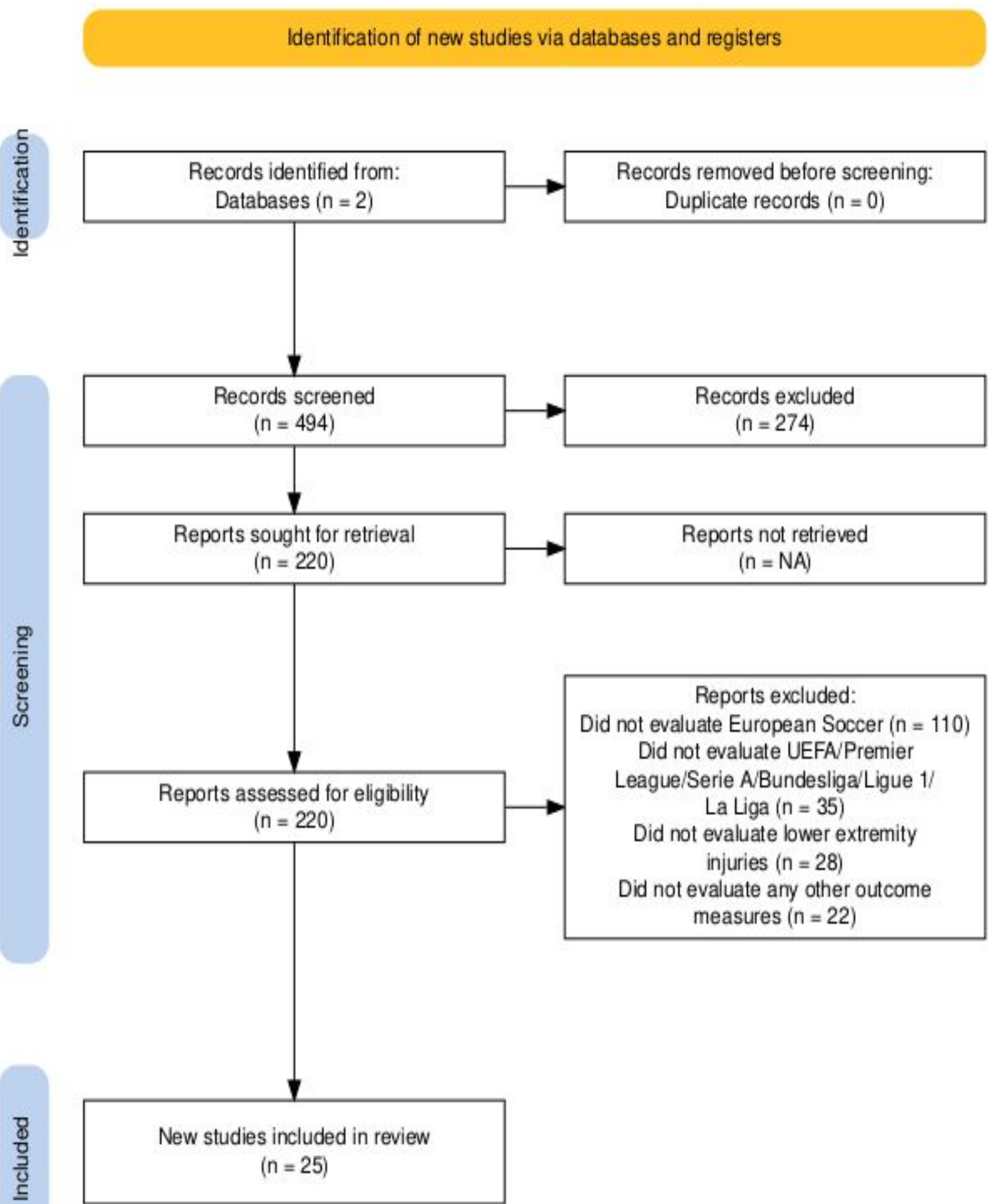


Figure 1: PRISMA Flow Diagram

Results

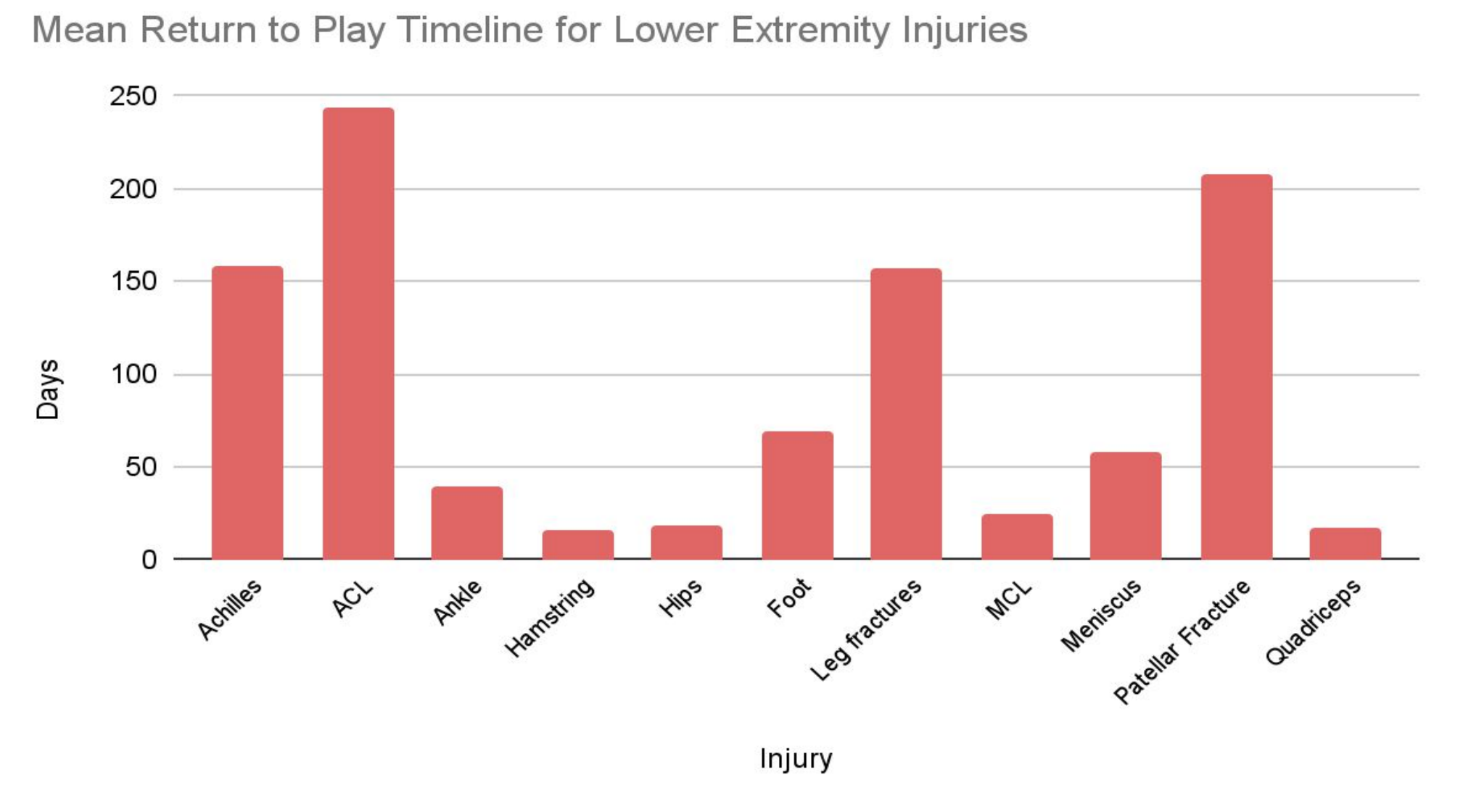


Figure 2: Mean return to play timeline, reported in days, for lower extremity injuries in European football.

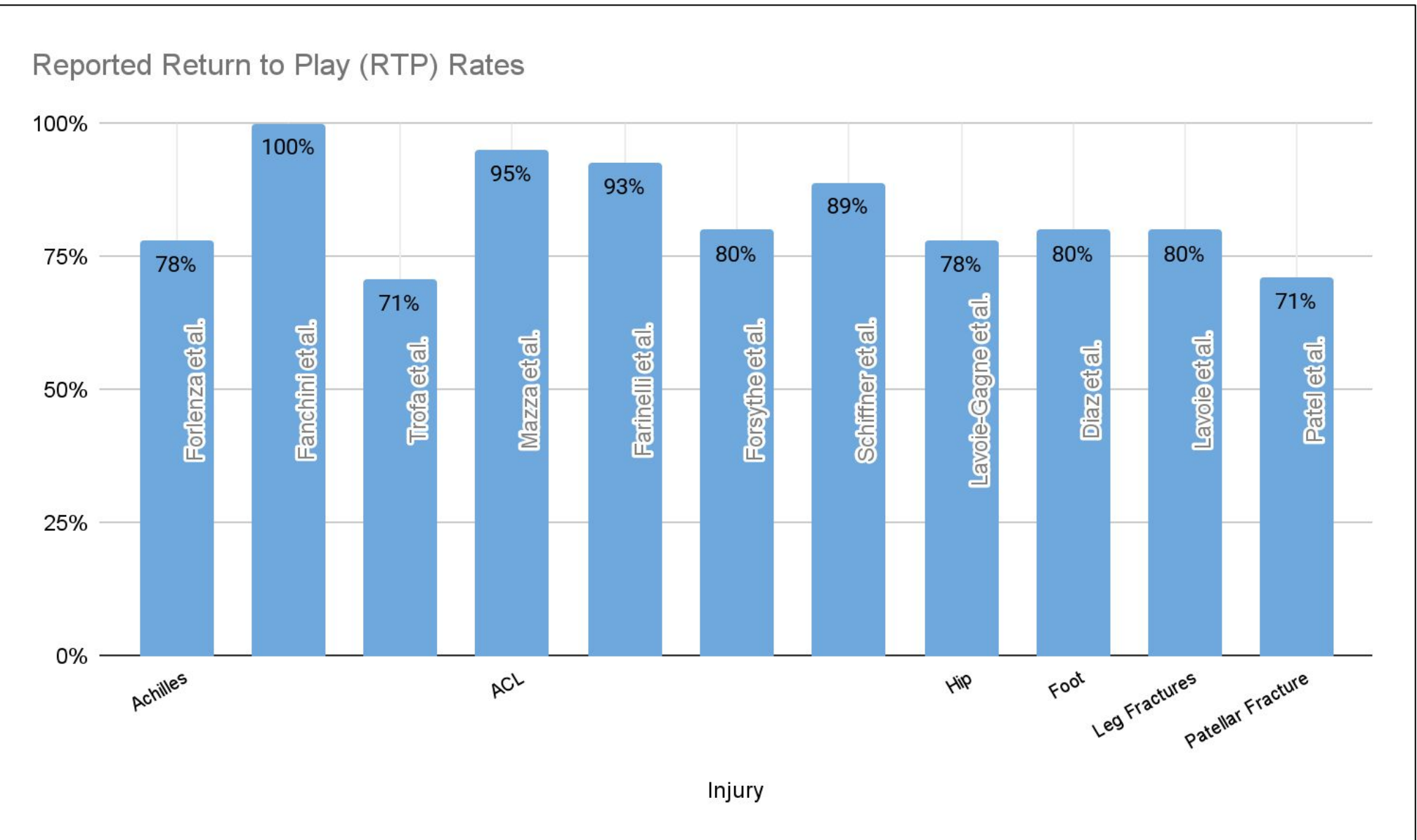


Figure 3: Reported return to play rates, reported as a percentage, for lower extremity injuries in European football.

Table 1: Difference in games played between year of injury/index year compared to one year before.

Injury	Study	Position	Control (mean $\pm$ SD)	Injured (mean $\pm$ SD)	P-value
Achilles	Forlenza et al.	All players	-1.81 $\pm$ 11.12	-6.77 $\pm$ 11.62	<.001
ACL	Forsythe et al.	Attackers	-5.85 $\pm$ 11.16	-10.36 $\pm$ 12.09	<.001
		Midfielders	2.12 $\pm$ 9.25	1.20 $\pm$ 12.73	<.001
		Defenders	-0.73 $\pm$ 12.70	-9.62 $\pm$ 9.47	<.001
		Goalkeepers	-2.09 $\pm$ 11.20	-6.43 $\pm$ 12.05	<.001
Patellar Fracture	Patel et al.	All players	5.30 $\pm$ 11.59	7.67 $\pm$ 8.61	0.177

Table 2: Difference in goals scored between year of injury/index year compared to one year before.

Injury	Study	Position	Control (mean $\pm$ SD)	Injured (mean $\pm$ SD)	P-value
Achilles	Forlenza et al.	All players	-0.29 $\pm$ 3.10	-1.06 $\pm$ 3.22	<.05
ACL	Forsythe et al.	Attackers	-1.83 $\pm$ 5.11	-1.82 $\pm$ 3.34	<.001
		Midfielders	0.39 $\pm$ 2.33	1.20 $\pm$ 1.75	<.001
		Defenders	0.14 $\pm$ 0.89	-0.54 $\pm$ 1.39	<.001
Patellar Fracture	Patel et al.	All players	1.00 $\pm$ 3.11	1.92 $\pm$ 3.31	0.529

Discussion

- Lower extremity injuries significantly affect return to play (RTP) and performance in European soccer players.
- Financial burden is also significant. Studies show these injuries cost thousands of euros for amateurs and professional leagues losing hundreds of thousands in lost salaries, treatment costs, and missed matches.
- These findings aid clinicians in prognosis and athlete counseling, highlight injury prevention importance and potential for non-surgical rehab studies.
- Limitations include potential publication and selection bias, variability in injury types, treatments, and RTP definitions hindering generalizability, and unaddressed changes in treatment approaches over time.
- Future research should standardize return-to-play metrics, evaluate treatment effects including non-surgical rehab in elite athletes, and assess the economic impact of injuries.

Conclusion

Our results concluded that ACL, achilles, and patellar injuries were perceived as the most detrimental lower extremity injuries an individual athlete may suffer, based on percentage of athletes returning to competition, the length of injury recovery, and performance metrics of these athletes compared to uninjured controls.

References

