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Occupational Safety and Injury Risk in Professional Football: The Portuguese Framework in Comparative Perspective

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Abstract

Professional football players face considerable occupational hazards, with injuries posing serious challenges to player safety, club performance, and regulatory oversight. This descriptive study examines the multifaceted implications of Portugal's Laws No. 48/2023, which formally recognises professional football as a high-risk occupation and strengthens the mandatory insurance regime through a major regulatory update. Adopting a qualitative approach, the analysis focuses on Portugal, where the professional football business model heavily relies on player commercialisation, and compares regulatory frameworks in Spain, Germany, England, Italy, France, and Brazil. Findings indicate that Portugal's legal framework enhances player safety by ensuring comprehensive coverage and improved disability protections, yet also introduces financial pressures on clubs, particularly those with lower economic capacity. These pressures are exacerbated by limited market competition and high insurance concentration, increasing premium costs. Cross-country comparisons reveal persistent disparities in legal standards, insurance scope, and institutional coordination, which complicate risk allocation in an increasingly globalised football market. Notably, Portugal's high-risk insurance model most closely aligns with France's hybrid approach, in contrast to fully public schemes seen in countries like Germany and Italy. While complete harmonisation remains challenging, the study identifies key principles to guide policy reform and international cooperation. Overall, the findings advance understanding of occupational risk regulation in sport and offer practical insights for designing effective, equitable, and safety-oriented protection systems for professional athletes.

Keywords: athletes' safety; sports law; professional football; football players injuries; occupational insurance; high-risk profession; insurance regulation; comparative legal analysis



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1. Introduction

Professional football is among the most economically significant and culturally pervasive sports globally, with the European market alone generating €26.8 billion in 2023 [1]. However, this global industry is underpinned by a stark occupational reality: professional footballers face injury rates that far exceed those of traditionally high-risk professions [2,3]. These injuries generate legal, economic, and social consequences, affecting players' health and welfare, clubs' financial sustainability, and broader regulatory frameworks [4,5]. In countries such as Portugal, where the buying and selling of players is a crucial source of

revenue for clubs, athletes' physical condition is a fundamental economic asset. Within this context, injuries emerge not only as a sporting challenge but also as an economic, labour, and social issue, directly affecting team performance and player market value.

The economic dimension of football injuries is particularly significant. Injuries impose both direct costs, such as medical expenses and player salaries during recovery, and indirect costs, including productivity loss and decreased team performance, which together represent a substantial financial burden [6,7]. Clubs may sustain up to 15 muscle injuries per season, particularly hamstring injuries, which often entail longer recovery times and higher recurrence-related costs [8]. At the macro level, leagues and national associations also incur heavy losses [9]. These injuries not only affect athletic performance but also reduce revenue from broadcasting and other income streams [10], underscoring the need for injury-prevention strategies and robust insurance markets tailored to professions' high-risk profile [11].

Empirical studies further quantify this burden. On average, top-division clubs report more than 50 injuries per season, resulting in cumulative costs of millions of euros when medical expenses and wages during absences are considered [6,9]. At the league level, injuries have been associated with measurable declines in performance and consequent reductions in broadcasting and match-day revenues [10]. These findings underscore the economic imperative for effective risk mitigation in football and provide a basis for evaluating how legal and insurance frameworks can address this challenge. Despite the high exposure to physical risk, professional footballers do not always benefit from a legal framework fully adapted to the nature of their activity. The recurrence and severity of specific injuries raise concerns regarding the adequacy of existing social protection, particularly concerning mandatory occupational accident insurance coverage and the potential classification of professional football as a "wear-and-tear" or "fast-depreciation" profession. These issues become especially relevant considering the relatively short average career span and the possibility of early retirement due to disability. Within this context, Portugal's Law No. 48/2023 establishes a dedicated legal regime for compensating work-related injuries among professional athletes, recognising the heightened occupational risks inherent in elite sport. Repealing the earlier Law No. 27/2011, this legislation introduces enhanced protections specifically tailored to the realities of athletic performance. It mandates that football clubs provide compulsory workplace accident insurance, calibrated to the elevated injury risks of professional football. Crucially, it reinforces players' rights to compensation, rehabilitation, and long-term support in cases of temporary or permanent incapacity, aligning legal safeguards with the profession's distinctive demands. Law No. 48/2023 represents a significant refinement of the previous framework, a landmark development in the evolution of sports labour law, with potentially far-reaching implications for the governance, financial sustainability, and insurance architecture of football in Portugal. The law reflects a growing recognition of the sports' hazard profile, which has been compared to that of mining and emergency services [12]. Empirical evidence supports this classification: elite players experience injury rates nearly a thousand times higher than those in other dangerous industries [13], and, for instance, the prevalence of knee osteoarthritis in retired male footballers is two to three times higher than in the general male population [14]. These health consequences extend beyond retirement. Former professional footballers who sustained multiple severe injuries during their careers reported poorer physical quality of life after retirement [15]. These health outcomes underscore the acute and long-term safety hazards inherent in the sport, reinforcing the need for robust protective measures.

Despite extensive health research documenting injury patterns, rehabilitation protocols, and prevention strategies [2,3], the legal classification of these injuries as occupational risks and the resulting economic and insurance implications remain underexplored in a

comparative context [16,17]. The works of Liu et al. [18] on legal accountability and Ross et al. [19] and Krutsch et al. [20] on insurance are examples of these discrete strands of inquiry that illuminate complementary facets of the same phenomenon—safety. However, a synthesised framework that intertwines legal obligations, their economic effects, and insurance practice remains conspicuously absent as regulatory and insurance responses continue to diverge across countries due to varying legal, cultural, and economic rationales [21,22]. An integrated research agenda is therefore essential if scholars and practitioners are to devise holistic strategies for the prevention and management of football injuries. This gap is particularly concerning, considering the growing globalisation of the football industry, which intensifies player mobility and exposes professionals to heterogeneous legal and insurance regimes. In the era of globalisation, professional football increasingly operates as a transnational labour market marked by intensified player mobility and complex legal challenges. Following the Bosman ruling, which eliminated intra-European Union transfer restrictions, the proportion of foreign players in European clubs increased substantially [23], driving greater contractual liberalisation and competitive recruitment [24]. However, this mobility exposes players to heterogeneous legal regimes, fragmented social security systems, employment insecurity, and disparities in insurance coverage across jurisdictions [25]. While globalisation expands career opportunities, it simultaneously multiplies structural vulnerabilities, underscoring the need for interdisciplinary analyses that highlight the need for a comprehensive research agenda synthesising legal, economic, and insurance dimensions of football injuries to inform holistic prevention and governance strategies, especially regarding the inequities created by fragmented regulatory environments. Indeed, this research gap is particularly significant, as the absence of harmonised approaches creates potential inequities in player protection, competitive imbalances between clubs operating under different regulatory regimes, and complex challenges for insurance markets attempting to price and manage these risks.

To address these concerns, the present study is guided by the following research question: How does the recognition of professional football as a high-risk occupation, coupled with a strengthened insurance mandate, impact player safety and financial sustainability and what comparative lessons can be drawn from other jurisdictions?

Accordingly, this study addresses the literature gaps through an interdisciplinary analysis of the legal, economic, and insurance implications of classifying football as a high-risk profession, focusing particularly on Portugal's law as a comparative case study. The objectives include: (i) analysing the legal foundations and implementation mechanisms of the mandatory Portuguese insurance Law and assessing its economic effects on stakeholders such as clubs, players and insurers, (ii) conducting a systematic comparative analysis of legal frameworks and insurance requirements across seven jurisdictions (Portugal, Spain, Germany, England, Italy, France, and Brazil) and (iii) proposing evidence-based policy recommendations balancing player protection, financial sustainability, and competitive equity. Methodologically, this study adopts a qualitative comparative case-study approach. The seven jurisdictions were selected to represent a mix of legal traditions (civil and common law), insurance frameworks (public, private, and hybrid), and both European and non-European contexts. This purposive selection captures a broad spectrum of approaches while focusing on highly relevant football markets.

The primary scholarly contribution of this work is an interdisciplinary analysis that bridges legal and economic perspectives to provide a comprehensive understanding of this reform's implications, thereby filling a notable gap in the literature. The present paper is organised as follows: Section 2 reviews the literature on legal and insurance aspects of football injuries. Section 3 analyses the Portuguese case, outlining the legal framework governing workers' compensation insurance for professional football players

in Portugal. Section 4 broadens the analysis to six additional leagues, comparing their regulatory approaches to insurance coverage for professional football players. Section 5 concludes by presenting the main conclusions, practical implications, limitations, and future research directions.

2. Literature Review

2.1. *Legal Frameworks for Professional Athletes*

The legal status of professional athletes remains a complex and evolving issue, marked by substantial variation across jurisdictions. Traditional labour laws often fail to capture the particularities of sports careers, leading to the emergence of specialised frameworks. This section explores four core dimensions that structure legal debates in this area: employment status, occupational risk classification, regulatory protection, and legal traditions.

2.1.1. Employment Status of Professional Athletes

Professional athletes face distinctive employment challenges that differentiate them from workers in conventional labour markets. In many European jurisdictions, professional footballers are predominantly classified as employees, thereby entitled to standard labour protections, including occupational health and safety regulations, social security benefits, and collective bargaining rights [26]. Nonetheless, the practical implementation of these protections varies, with some countries adopting sport-specific exceptions or adaptations to the general employment framework [27]. Professional athletes often face short, injury-prone careers that may end involuntarily, making post-retirement transitions to related roles, such as coaching or media, essential for leveraging their specialised skills and human capital [28]. O’Leary, Seltmann, and Smokvina [26] highlight that exclusion from standard employee status across European jurisdictions creates notable gaps in social and employment protections, especially regarding injury-related risks, where insufficient social security or compensation is provided. Conversely, European professional footballers benefit from sport-specific legal frameworks that offer advantages unavailable to typical employees, such as access to specialist arbitration through the Court of Arbitration for Sport and regulatory autonomy granted to bodies such as FIFA and UEFA [27,29]. These frameworks have shaped a differentiated labour governance system in sport, which, while protective in certain respects, is unevenly applied and may exacerbate disparities between elite and lower-tier athletes. Outside Europe, employment governance tends to be more fragmented or sport-specific. International federations such as FIFA exert considerable regulatory authority through contractual mechanisms that override national labour laws, forming a “chain of contracts” among clubs, players, and governing bodies [30]. This arrangement, while offering some protections, may also undermine local labour standards. According to Kohe & Purdy [31], professional athletes occupy a unique socio-legal category of “sport workers,” governed by normative and contractual regimes that confer privileges while reproducing precarity, particularly amid career instability and employer dominance.

2.1.2. Legal Classification of Occupational Risk in Sports

Occupational risks in sports are distinct due to the specific nature of athletic activities and are generally classified as occupational accidents or diseases, both legally defined and statistically monitored [32]. The classification system used significantly influences how such risks are understood and measured. However, traditional frameworks were primarily designed for industrial contexts and often fail to capture the unique features of sport-related risks [33]. Risk categories, typically based on accident frequency, harm severity, and preventability, manifest differently in sports settings compared to conventional workplaces [34,35]. Weatherill [17] identifies three main legal approaches to classifying

occupational risk in professional sports: (1) inclusion within standard frameworks with sport-specific adaptations; (2) creation of specialised classification systems; and (3) exclusion from formal frameworks, relying instead on private contracts and insurance. Portugal's Law No. 48/2023 exemplifies the first model, formally recognising professional football as a high-risk occupation within its general occupational injury regime.

2.1.3. Regulatory Approaches to Athlete Protection

Athlete protection is increasingly recognised as a systemic, rights-based issue requiring cultural change. However, current safeguarding practices often reflect majority-centric views, limiting their applicability across diverse contexts [36]. Regulatory approaches vary widely across jurisdictions. Parrish [27] identifies a spectrum ranging from strong state regulation to primarily private governance via sporting federations and collective agreements. These differences reflect broader regulatory philosophies—some jurisdictions favour direct state involvement, while others rely on industry self-regulation with variable state oversight [37].

In Europe, the EU has become a key actor in athlete protection, shaping national systems through direct legislation, especially in areas like free movement and anti-discrimination, and indirect harmonisation of standards [17,29]. Outside Europe, the divergence is even more pronounced. While North America relies heavily on private mechanisms such as collective bargaining and league rules, South America and parts of Asia tend toward more state-driven models [30]. These disparities pose significant challenges for international governance, particularly in globalised sports like football [37].

2.1.4. Comparative Legal Traditions in Sports Law

Comparative law, by analysing different legal traditions and systems, provides valuable insights for legislative development and reform, including in sports law [34]. Legal traditions, shaped by institutions of lawmaking and adjudication, significantly influence how jurisdictions regulate sports [38]. Civil law countries tend to codify athlete protections more comprehensively, whereas common law systems rely on case law and private ordering [35]. These differences affect how occupational risks in football are defined, regulated, and compensated.

Many jurisdictions operate under a dual regulatory model where general employment, health, and tort laws intersect with sport-specific rules, often creating legal uncertainty [16,33]. Historical developments also matter: legal traditions have evolved differently in response to the professionalisation of football, with path dependencies [27], colonial legacies, and legal transplants shaping hybrid legal systems [37].

Despite these divergences, recent comparative research highlights growing convergence in key areas. Duval [29] notes increased recognition of athletes' employment rights, while [39] identifies emerging international standards for injury compensation and insurance. Still, significant legal fragmentation remains, posing challenges for stakeholders operating across jurisdictions [40].

2.2. Insurance Systems for Professional Athletes

Insurance systems for professional athletes have evolved significantly, reflecting broader differences between public and private health coverage models. Public insurance systems, prevalent in countries with robust welfare states, are characterised by mandatory subscription, comprehensive coverage, and substantial government funding. These systems ensure that all citizens, including athletes, have access to necessary medical services [41,42].

Professional athletes benefit from the broad scope of public insurance, which typically includes full access to medical examinations, medication, and laboratory analyses [43]. In contrast, private insurance, whether employer-based or individually purchased, may

offer more customised plans, but often with partial or selective coverage [43]. Regulatory structures also differ: in public systems, general practitioners frequently serve as gatekeepers, directing access to specialised care and controlling costs [44]. Fundamentally, public insurance prioritises social equity and universal access, while private models are driven by market efficiency and profit motives, potentially influencing the scope and quality of coverage for athletes [45].

At the international level, sport governance often operates through self-regulatory models, in which private organisations such as leagues and federations establish their own rules, bylaws, and enforcement mechanisms. These macro-regulatory systems govern relationships among clubs, athletes, and governing bodies with minimal external legal oversight and often include revenue-sharing mechanisms to promote financial stability [46,47]. However, significant challenges arise in the context of player transfers, particularly in globalised sports such as football, involving complex financial operations and multiple stakeholders. The fast-paced nature of transfer negotiations raises ethical concerns about medical confidentiality, especially regarding the ownership, access, and disclosure of medical data. The cancelled transfer of Ruud van Nistelrooy, following the disclosure of medical concerns, remains a high-profile example of these tensions [48]. Insurance systems must also contend with logistical barriers to transnational coverage, including difficulties coordinating follow-up care and long-term medical support after international transfers [49]. These gaps are particularly problematic given the short, high-risk careers of professional athletes and the potential for long-term disability or career-ending injuries. While insurance systems provide a framework for financial and medical security, challenges in player transfers—including confidentiality issues and logistical constraints—require ongoing attention and improvement to support the well-being and career development of professional athletes.

Drawing on these insights from the literature, the following section examines how Portugal's legal framework has evolved to address the risks and gaps identified above.

3. The Portuguese Legal Framework

Portugal's legal framework governing professional sports has progressively evolved, with the recent enactment of Law 48/2023 of 22 August [50] providing a significant refinement of previous legislation. This law aims to modernise and streamline the regulation of professional sports activities, building on the foundations already established. This section examines the context, development, key provisions, implementation mechanisms, and drawbacks of this legislative framework, providing the foundation for subsequent comparative analysis.

3.1. *The Legal Treatment of Sports Injuries in Portugal: An Evolutionary Perspective*

Portugal's regulatory framework for professional sport began to take shape with Law No. 28/1998 of 26 June [51], which recognised the distinctive nature of sports employment. Replacing Decree-Law No. 305/95, this legislation established a dedicated regime for employment and training contracts in professional sport, acknowledging its specificities relative to general labour law. However, Law No. 28/1998 did not adequately address work-related accidents, a critical issue given the elevated injury risks and short career spans typical of professional athletes. In response, Law No. 8/2003 [52] introduced provisions for compensating injuries in sport, but it was regarded as an incomplete solution. A more targeted legal framework emerged with Law No. 27/2011 [53], which repealed Law No. 8/2003 [52] and created a specific regime for compensating occupational accidents among professional athletes. It established mandatory sports insurance and clarified rules

for calculating indemnities and pensions, reflecting the unique physical demands and vulnerabilities of sports professionals.

However, the continued commercialisation and complexity of professional sport revealed the limitations of this framework. As a result, Law No. 48/2023, in force since 22 August 2023, introduced a comprehensive overhaul of the legal regime for occupational accidents in sport. Replacing Law No. 27/2011, the new legislation responds to the specific needs of athletes by enhancing protection mechanisms and legal clarity. Key innovations include mandatory informed consent for the sharing of medical data between insurers and employers, structured rehabilitation processes, conflict-resolution procedures involving federation-appointed medical experts, and updated rules for compensation and disability pensions. The law also explicitly covers medical travel and accommodation expenses.

This reform acknowledges the accelerated physical wear and shorter career spans of professional athletes, especially footballers. It represents a significant step forward in adapting Portuguese occupational injury law to the realities of modern professional sport. Under the new framework, football clubs are required to take out workplace accident insurance policies tailored to the heightened injury risks associated with professional football.

One of the most innovative aspects of Law No. 48/2023 is its formal recognition of the risks associated with professional football. The law introduces a dedicated compensation table that reflects the sports' elevated injury incidence and severity. Indeed, while Law 48/2023 does not explicitly designate professional football players as high-risk professionals, the disability schedule contained within the law provides clear evidence that professional football constitutes a high-risk occupation.

The reform also strengthened the insurance architecture underpinning athlete protection. In conjunction with Law No. 54/2017 [54] (governing the sports employment contract), Law No. 98/2009 [55] (which regulates occupational accident compensation), and the collective bargaining agreement between Liga Portugal and the Union of Professional Football Players, Law No. 48/2023 requires clubs to maintain insurance policies that provide coverage for temporary incapacity, permanent disability, and long-term medical care. Clubs must provide proof of such insurance as a condition for licensing and participation in official competitions [56]. At the same time, the Labour Inspectorate and the Insurance Supervisory Authority are empowered to monitor compliance and impose sanctions for breaches. Insurance exclusions are tightly regulated. Only objectively verified pre-existing conditions or narrowly defined cases of gross negligence are permitted as grounds for exemption.

Despite these improvements, legal disputes between players and insurers over disability classifications have intensified. Between the 2017/2018 and 2021/2022 seasons, the proportion of claims involving medical board assessments rose from 2.3% to 6%, peaking at 8% in 2020/2021, while litigation rates nearly doubled from 10.7% to 19.3% [57]. Although the average disability ratings assigned by these boards have remained stable, the rising number of cases brought to court suggests increasing reliance on legal and medico-technical mechanisms, highlighting the judicialisation of the insurance process and raising concerns about the effectiveness and transparency of current dispute-resolution frameworks.

This legislative progress aligns with broader European and international trends in athlete protection. The European Commission's 2024 implementation report on the EU Work Plan for Sport 2021–2024 identified health, safety, and social protection as key priorities for EU sport policy, encouraging Member States to reinforce their regulatory frameworks in this area [58]. At the international level, FIFA's 2021 revision of the Club Protection Programme modestly expanded insurance coverage for temporary total disablement during international duty. However, it continued to exclude permanent disability and long-term medical costs [59]. Concurrently, FIFPro's 2022–2023 Player Workload Monitoring reports

revealed that congested match calendars were increasing injury risks and long-term health burdens for elite footballers [60], fuelling calls for stronger domestic protections, of which the Portuguese reform is a notable example.

3.2. Economic Drawbacks of the New Legal Framework

While Law No. 48/2023 represents a significant step forward in safeguarding the rights and health of professional athletes, it also introduces substantial economic burdens, particularly for smaller football clubs with limited financial resilience. Since the legislation mandates compulsory occupational accident insurance, clubs are legally required to secure coverage from private insurance providers.

One of the main limitations of Portuguese legislation lies in the complexity of interpreting the disability assessment table used to determine compensation for work-related injuries. This table is primarily based on the General Table of Work-Related Accidents, which was not originally designed for sports-related injuries. Consequently, the typology and severity of injuries in professional football, often involving specific functional impairments and variable recovery trajectories, are not adequately reflected in the current framework. This structural limitation may lead to inconsistencies in the evaluation of permanent or temporary incapacity among professional athletes.

From the insurer's perspective, the high risk and mandatory nature of this market may lead to concentration, as only a limited number of companies are willing to underwrite such policies, a pattern evident in the Portuguese context, where the market remains highly concentrated. Indeed, only two currently offer coverage for professional football players. The company Caravela insures all players from the clubs in the First and Second Leagues, except for FC Porto, SL Benfica, and Sporting CP, whose players were insured by Fidelidade. Moreover, since professional compensation insurance is compulsory, insurers are aware that football clubs are legally obliged to purchase coverage. Together, these two dynamics—limited competition and inelastic demand—contribute to the inflation of insurance premiums. Thus, it reinforces the need for active regulatory oversight to safeguard market efficiency and contain cost escalation.

These insurance policies are not offered at fixed rates; they are negotiated individually and calculated as a proportion of the insured players' total wage bill. Although insurers must operate within regulatory parameters that prohibit discrimination based on nationality or union affiliation, they may differentiate based on objective risk factors, most notably players' age and salary levels. Consequently, clubs with older or higher-paid players are likely to face proportionally higher insurance costs.

While premiums can be substantial, they represent a strategic investment for clubs. By transferring the financial risk of injury to insurers, clubs are relieved of the obligation to pay injured players' wages, especially in cases of long-term absence or high salaries. In the long run, additional benefits may include reduced healthcare costs and improved performance due to lower anxiety related to injuries. Though difficult to quantify, simulation models suggest that avoided earnings losses may offset insurance costs, especially when effective prevention strategies reduce the frequency of severe injuries [61].

Even with risk transferred to insurers, clubs retain incentives to invest in prevention, improve medical infrastructure, and ensure compliance with rehabilitation protocols. These efforts not only mitigate injury risk but can also lead to lower premiums. However, these measures require financial resources that many clubs lack [62]. In this context, FIFA-mandated compensatory mechanisms for training clubs can help absorb some of these costs, particularly in lower leagues.

Insurance premiums may also limit clubs' ability to offer competitive wages, invest in player acquisitions, and support youth development, all of which influence team

performance and revenue streams. Since the absence of star players reduces audience engagement, improved injury protection could help stabilise ticket and broadcasting revenues [63]. Still, the impact varies across clubs based on their financial structures and existing risk management practices [64].

Finally, a further economic drawback of the framework may be its vulnerability to moral hazard, a classic issue in insurance economics [65], in which insured individuals take on greater risks or reduce precautionary behaviour because they do not bear the full cost of their actions. In football, this could translate into strategic behaviour by players, particularly older or injury-prone internationals, who may choose Portugal as a final career destination due to the generous coverage. This dynamic increases the risk of adverse selection, potentially leading to higher claims and premiums. Although no empirical evidence confirms this trend in Portugal, similar effects have been documented in other generous insurance contexts [66]. Long-term sustainability may therefore depend on complementary safeguards such as stricter medical evaluations, differentiated premium structures, and enhanced regulatory monitoring, to ensure that the protective benefits do not inadvertently encourage opportunistic or moral hazard behaviours.

These findings from the Portuguese context set the stage for a broader comparative analysis of how other jurisdictions manage occupational risk in professional football.

4. Comparative Analysis of International Frameworks

Methodologically, this study adopts a qualitative comparative case-study approach. The descriptive analysis focuses on legal classification, insurance design, and implementation dynamics among seven professional football leagues: Portugal, Spain, Germany, England, Italy, France, and Brazil. These jurisdictions were selected based on several criteria identified as methodologically significant in comparative legal research [67]:

1. **Legal tradition diversity:** The selected jurisdictions represent different legal traditions, including civil law (Portugal, Spain, Germany, Italy, France, Brazil) and common law (England) systems, enabling analysis of how these broader traditions influence sports-specific regulations.
2. **Football significance:** All selected jurisdictions have well-established professional football leagues with significant economic activity and international prominence, ensuring relevance to the global football ecosystem.
3. **Regulatory approach variation:** Jurisdictions exhibit significant differences in their approaches to occupational risk classification and insurance requirements for professional athletes, offering valuable comparative insights.
4. **Data availability:** Sufficient legal, economic, and insurance data are available for all selected jurisdictions, enabling robust comparative analysis.
5. **International transfer connections:** The selected jurisdictions represent major markets in terms of transfer fee volume, underscoring the practical importance of cross-jurisdictional regulatory coordination [68].

In sum, within Europe, we focused on the “Big Five” leagues (England, Spain, Germany, Italy, and France) because they represent the most economically and competitively significant football markets, thus offering a relevant benchmark for understanding how accident insurance operates in high-profile professional contexts. To complement the European analysis and assess whether the legal and regulatory frameworks differ substantially outside Europe, we included Brazil, which not only hosts one of the world’s most prominent football leagues but is also the most significant global exporter of professional players, making it particularly relevant in discussions about labour protection and player welfare. Finally, Portugal was included as the focal point of the study, allow-

ing for an in-depth examination of national legislation and practice in relation to these international benchmarks.

This research draws on multiple data sources to ensure comprehensive coverage and methodological triangulation. Our analysis draws on primary legal sources (national legislation, regulations, and relevant collective agreements), and secondary data (official insurance reports, players’ union publications, and jurisprudential records), providing a robust basis for comparison. The data on Legal and Regulatory Sources includes national legislation governing occupational risk classification, employment status, and insurance requirements for professional athletes; regulatory frameworks established by national football associations and leagues; international regulations issued by FIFA and UEFA concerning player protection and insurance; collective bargaining agreements between player associations and clubs or leagues; judicial decisions addressing football injury compensation and insurance disputes. These documents were accessed through official government databases, archives of sports governing bodies, legal databases (including LexisNexis, Westlaw, and EUR-Lex), and direct requests to relevant institutions. Additional sources include the Deloitte Annual Review of Football Finance, UEFA Club Licensing Benchmarking Report, EY Portuguese Professional Football Yearbook, and KPMG Football Benchmark.

Table 1 presents the main features of international frameworks and includes Portugal as a benchmark for direct comparison.

Table 1. Comparative analysis of international occupational insurance frameworks.

Jurisdiction	Risk-Classification Approach	Insurance Architecture	Principal Legal/Regulatory Instruments	Distinctive Features & Innovations	Principal Challenges
Portugal	Statutory designation of professional football as a high-risk occupation under the Law. 48/2023, Law 54/2017 and Law 98/2009. Recognised as a rapid-wear profession under the Labour Code.	Mandatory private occupational-accident insurance funded by clubs; limited coverage by social security	Law 48/2023; Law 54/2017 and Law 98/2009; CBA between LP and SJPF [69]; ASF and Liga Portugal supervisory rules [56]	Lifetime medical care and financial compensation for permanent disability; reassessment rights; supervisory oversight by ASF; club licencing linked to proof of insurance	Sharp premium increases for small clubs; need for sustained supervisory capacity; uneven enforcement outside top divisions
Spain	No explicit high-risk statute; coverage shaped by Royal Decree 1006/1985 and LaLiga-AFE collective bargaining	Mixed model: public social-security foundation with collectively bargained private top-ups	RD 1006/[70]; LaLiga-AFE CBA [71]	Flexible, negotiable benefit levels aligned with economic cycles	Variable protection across divisions; limited standardisation of long-term care
Germany	Sectoral actuarial classification within the statutory accident insurance Gemeinde Unfallversicherungen (GUVVBG); no sport-specific statute	Mandatory public GUV funded by employer contributions with experience-rating; optional private supplements	SGB VII [72]; GUV/VBG statutes [73] Bundesliga & DFB regulations [74]	Prevention incentives via risk-weighted premiums; concussion research funding	Cost volatility for injury-prone clubs; statutory caps for high earners; limited adaptation for sports-specific risk
England	No legislative high-risk status; insurance duties are embedded in Premier League/EFL rules and the Standard Player Contract	Near-total reliance on private market cover mandated by league rules, backed by PFA schemes. Employer-paid liability insurance; NHS covers medical needs; limited private top-ups	Employment Rights Act [75]; Employers’ Liability (Compulsory Insurance) Act (UK Parliament, 1996); FA & Premier League rule [76]	Product innovation (loss-of-value, key-player cover); strong club-level risk-management incentives	High premiums tied to squad value; uneven protection outside top divisions; gaps in post-career support; unclear private-public coordination

Table 1. Cont.

Jurisdiction	Risk-Classification Approach	Insurance Architecture	Principal Legal/Regulatory Instruments	Distinctive Features & Innovations	Principal Challenges
Italy	Implicit high-risk recognition via elevated INAIL contribution classes; no dedicated statute	Public INAIL occupational-accident insurance supplemented by collectively bargained private policies	Law 91/1981 [77]; INAIL [78]; FIGC regulations	Public risk-pooling plus negotiated flexibility; experience-rated contributions	Administrative complexity; benefit ceilings for very high salaries; coordination issues between insurers
France	High injury risk addressed through integration into the general CPAM regime; no separate high-risk statute	Robust public social-security base with mandatory private top-ups and CFPF benefits	Code du Travail & Sécurité Sociale [79] CPAM [80] FFF/LFP/UNFP agreements [81]	Emphasis on career-long health monitoring and transition support; recognition of psychological injury	High contribution rates; multi-layered administrative complexity; high contribution rates; limited club autonomy
Brazil	Mandatory accident insurance under the Pelé Law without formal high-risk classification; heavy reliance on the private sector	Predominantly private club-funded insurance layered on basic INSS social security	Pelé Law 9.615/1998; CBF standards [82]	Coverage scaled to contract value; intensified compliance monitoring	Inconsistent implementation; weak public backstop; limited long-term care provision

Note: CBA—Collective Bargaining Agreement; LP—Liga Portugal (Professional Portuguese Football League); SJPF—Sindicato dos Jogadores Profissionais de Futebol (Portuguese Professional Footballer’s Union); AFE—Asociación de Futbolistas Españoles (Spanish Footballers’ Association); GUV—Gesetzliche Unfallversicherung (German public entity linked to the statutory accident insurance system); DFB—Deutscher Fußball-Bund (German Football Federation); EFL—English Football League; NHS—National Health Service; INAIL—Istituto Nazionale per l’Assicurazione contro gli Infortuni sul Lavoro (Italian National Institute for Insurance against Accidents at Work); FIGC—Federazione Italiana Giuoco Calcio (Italian Football Federation); CPAM—Caisse Primaire d’Assurance Maladie (Primary Health Insurance Fund); FFF—Fédération Française de Football (French Football Federation); LFP—Ligue de Football Professionnel (French Professional Football League); UNFP—union Nationale des Footballeurs Professionnels (French National Union of Professional Footballers); CBF—Confederação Brasileira de Futebol (Brazilian Football Confederation).

4.1. Country-Level Approaches to Risk Protection in Professional Football

Based on the comparative data in Table 1, this section examines how seven countries structure their professional football injury protection systems across five key dimensions: risk classification, insurance architecture, legal instruments, distinctive innovations, and main challenges.

4.1.1. Risk Classification Approach

Jurisdictions vary markedly in how they conceptualise and classify the occupational risks associated with professional football. Portugal is the only country to legally define professional football as a high-risk activity in its national legislation (Law No. 48/2023). This designation carries significant regulatory and insurance implications. This formal recognition aligns legal doctrine with empirical evidence on injury prevalence, thereby reinforcing the legitimacy of compulsory insurance mandates. Evidence from other high-demand contexts also supports this approach: in the military, for example, soccer accounts for the highest share of sport-related injuries, often exceeding rugby and other contact sports in both frequency and severity [83]. By contrast, countries such as Germany, Italy, and France adopt more integrated approaches, embedding football within broader sectoral or occupational categories under their public accident insurance systems. These frameworks implicitly acknowledge elevated risk levels but do not isolate football as a distinct category, instead relying on general classifications for sports, entertainment, or performing arts. While this facilitates administrative consistency, it may limit sport-specific tailoring of risk-based contributions or prevention measures. In England and Spain, the classification of football-related risk is not codified through public legislation. Instead, it is shaped through collective bargaining agreements and general labour law. The absence

of statutory classification places greater weight on contractual negotiation and may lead to heterogeneous standards across clubs and leagues. Brazil occupies a hybrid position: federal legislation (notably the Pelé Law) mandates accident insurance for professional athletes, implicitly recognising heightened risk, though without a formal classification within occupational safety law. This normative ambiguity can complicate enforcement and limit the design of risk-adjusted premiums or incentives.

Overall, while all jurisdictions acknowledge the inherently hazardous nature of professional football, only Portugal has formalised this recognition into a specific legal classification. The remaining systems rely on indirect or implicit approaches, which may generate inconsistencies in coverage adequacy, actuarial accuracy, and injury prevention strategies.

4.1.2. Insurance Architecture

The insurance architecture across jurisdictions spans from fully public to fully private systems, with several hybrid models in between. Portugal employs a hybrid model: while insurance is purchased from private providers, it is regulated by strict public oversight. This structure ensures compulsory coverage and benefit uniformity, but the reliance on private underwriting may heighten premium costs for clubs, particularly in lower divisions. Germany and Italy represent public-centred models. Both integrate professional football into national statutory accident insurance schemes (GUV/BGV in Germany; INAIL in Italy), which are financed through employer contributions. These systems offer standardised coverage and administrative stability, with Germany notably incorporating an experience-rating mechanism to incentivise injury prevention. France also relies heavily on public financing through social security, but supplements this with tailored sectoral agreements between football federations and unions. The resulting architecture delivers both baseline protection and additional services, such as career transition programmes and mental health support. In contrast, England and Brazil follow market-driven models where insurance is arranged privately. England's decentralised approach allows for bespoke contracts but results in uneven protection, especially among lower-tier or academy-level players. Brazil mandates private insurance by law, but in practice, weak enforcement and financial instability among clubs often lead to gaps in coverage. Spain occupies an intermediate position. Insurance arrangements are shaped through collective bargaining, which can ensure robust benefits in top leagues but may lack consistency and enforcement strength across all tiers.

Across systems, the main trade-off lies between coverage universality (better ensured in public or hybrid models) and contractual flexibility (favoured in private systems). Hybrid regimes such as those in Portugal and France appear best positioned to reconcile these competing demands.

4.1.3. Legal and Regulatory Instruments

Legal and regulatory instruments governing insurance for professional footballers vary significantly in terms of formality, centralisation, and enforceability, reflecting each country's broader legal culture and institutional architecture. Portugal stands out with a dedicated legal framework: Law No. 48/2023 formally classifies professional football as high-risk work and mandates compulsory insurance under public supervision. This statute is complemented by earlier legislation (Laws No. 54/2017 and 98/2009), which, together, ensure legal certainty and regulatory coherence. Germany and Italy embed football within broader national accident insurance statutes. In Germany, the Social Code VII and the GUV/BGV framework provide binding public-law coverage. Similarly, Italy's Decree 38/2000 and subsequent administrative guidance from INAIL standardise coverage for professional athletes under general occupational injury rules. France adopts a layered

model: the Labour Code establishes the legal foundation, which is then customised through sector-specific collective agreements between football bodies (FFF/LFP) and unions. These agreements offer both regulatory detail and adaptability, notably in areas such as career transition and psychosocial care. England relies primarily on general labour law and civil liability principles. There is no football-specific statute mandating insurance; instead, coverage arises from employment contracts and private negotiation. This legal flexibility enables bespoke arrangements for elite players but risks underprotection in less regulated tiers. Spain uses collective bargaining agreements to define insurance responsibilities and benefits. These are recognised in law but function as semi-formal instruments whose effectiveness depends on enforcement at the club level and the strength of the players' union. Brazil is governed by federal sports legislation—particularly the Pelé Law (Law No. 9.615/1998)—which mandates private insurance for athletes. However, legal mandates are often undermined by weak enforcement mechanisms, especially among financially precarious clubs.

Overall, Portugal and Germany exemplify statutorily grounded models with strong public oversight. France and Spain rely more heavily on contractual instruments negotiated within the sector, while England and Brazil operate under general legal norms with variable implementation. The level of legal formalisation directly influences coverage consistency, players' legal recourse, and compliance across club tiers.

4.1.4. Distinctive Features and Innovations

While insurance structures differ markedly across jurisdictions, several systems incorporate distinctive innovations that aim to enhance protection, reduce injury risk, and improve long-term player welfare. Portugal stands out for its comprehensive statutory regime, which mandates insurance coverage for all professional players. While legally robust, it lacks mechanisms to reward injury prevention. Germany incorporates experience rating into its public system, financially rewarding clubs with lower injury rates—an uncommon yet effective preventive strategy. France offers holistic support through the CFPF, addressing both career transition and psychological risks, alongside detailed collective agreements. Spain relies on collective bargaining to integrate injury coverage into broader employment protections, though implementation can vary by club and region. England enables bespoke insurance contracts, especially for elite players, offering flexibility but resulting in unequal coverage across tiers. Brazil links premiums to player earnings—a value-based model that suits club diversity but faces weak enforcement and non-compliance risks.

These features reflect divergent priorities: legal certainty in Portugal, institutional innovation in Germany and France, and contractual flexibility in Spain, England, and Brazil, with varying levels of equity and effectiveness.

4.1.5. Principal Challenges

Despite varied structural designs, all systems face significant challenges in balancing athlete protection with financial sustainability and administrative feasibility. Portugal's mandatory insurance regime ensures uniform coverage but imposes high financial burdens on clubs, especially in lower divisions, and may create moral hazard by reducing incentives for injury prevention. Germany's actuarial approach promotes efficiency through experience rating, but coverage caps may inadequately protect high-earning players. France offers extensive benefits, but the high cost of contributions can exacerbate inequalities between clubs with different financial capacities. Spain's dependence on collective agreements introduces inconsistencies, with the scope and quality of coverage varying by club and negotiation strength. Long-term care provisions also remain weak. England's market-driven

system creates fragmented coverage, especially for lower-tier and academy players, who often lack access to robust protection. Finally, Brazil faces systemic enforcement issues: clubs may default on premiums due to financial instability, leaving players effectively uninsured despite legal mandates.

These challenges underline the tension between ensuring adequate protection and maintaining economic viability, particularly for clubs outside the elite strata.

4.2. Strategic Outlook: Best Practices, Coordination, and Reform

The findings summarised in Section 5.1 reveal not only systemic diversity but also converging trends that inform strategic development. This sub-section distils those patterns and identifies forward-looking institutional strategies.

The comparative analysis highlights four core elements that consistently underpin the most resilient insurance frameworks. First, hybrid financing models, which blend broad public pooling with risk-sensitive private contributions, offer a pragmatic balance between equity and efficiency. Second, phased implementation aligned with club financial capacity, as observed in Portugal, facilitates political feasibility without compromising player protection. Third, formalised prevention incentives, such as experience rating or conditional premium rebates, are associated with measurable reductions in injury incidence. Fourth, the presence of specialised institutions (e.g., France's CPFP) enhances long-term player welfare by supporting career transitions and addressing psychosocial risks.

However, structural challenges persist at the transnational level. The coexistence of divergent national systems, FIFA's limited jurisdiction, and pronounced economic disparities among clubs and leagues hinder the development of cohesive standards. These asymmetries generate competitive imbalances and complicate cross-border injury claims. While some progress has been made through bilateral agreements and league-mandated documentation, harmonisation remains partial. A feasible path forward lies in adopting adaptable international minimum standards that respect legal diversity while guaranteeing essential protections [27,58].

In summary, the seven jurisdictions illustrate two broad approaches to insuring player risk. At one end of the spectrum, countries like Germany and Italy rely on public, statutory accident insurance schemes that embed professional football in nationwide occupational injury funds (ensuring broad risk pooling and state oversight). On the other hand, systems such as those in England and Brazil operate without sport-specific statutes, relying on general labour law or private contracts, with minimal state intervention. Between these extremes lie hybrid models—for instance, Portugal's and France's frameworks mandate private insurance coverage but place it under public regulatory supervision, aiming to balance market efficiency with uniform protection. Each model entails trade-offs: public schemes prioritise solidarity and centralised enforcement, whereas private approaches emphasise flexibility and market-driven efficiency, though they require strong oversight to prevent cost escalations. Despite differing structures, all jurisdictions face common challenges, such as controlling insurance costs and ensuring adequate long-term care for injured athletes, suggesting that no single model has definitively solved the risk-allocation puzzle in professional football.

5. Conclusions

This study has examined the legal, economic, and insurance implications of classifying professional football as a high-risk profession, focusing on Portugal as a case. Through an interdisciplinary lens, the analysis addressed three core objectives: understanding the specific impacts of the Portuguese insurance framework; identifying cross-country

regulatory and insurance differences; and formulating policy proposals that promote both player protection and systemic sustainability.

Our findings show that Portugal's recent legal reform (Law 48/2023) significantly strengthens player insurance protection and formally acknowledges the high-risk nature of football, thereby improving coverage for athletes. However, it also imposes greater financial burdens on clubs, especially those with limited resources. Internationally, our comparative analysis revealed a wide divergence in approaches—some countries employ public insurance schemes while others rely on private or hybrid models—and no uniform standard for managing football injury risk has yet emerged. These main findings highlight the trade-offs inherent in different systems and inform the following discussion on policy implications and future directions.

Portugal's mandatory insurance regime improved in 2023, standing out for its legal model of occupational accident insurance, which ensures robust and uniform protection for athletes and which represents a significant advancement in valuing player welfare. This high-risk classification positions Portugal as a pioneering jurisdiction in athlete protection, offering a replicable model for other countries. Player protection is especially critical in contexts such as Portugal, where the professional football business model fundamentally relies on the player transfer market. Severe or prolonged injuries can directly affect players' market value and the financial sustainability of clubs, making it imperative to establish a regime that combines comprehensive coverage with mechanisms promoting equity and economic stability within the sector. While the framework improves legal certainty and enhances access to compensation, it also presents challenges related to the complexity of interpreting the disability assessment table, premium inflation and financial strain on clubs, especially those in lower leagues, posing legitimate questions about sustainability and equitable implementation, highlighting the importance of regulatory oversight and adaptive cost-sharing mechanisms.

The comparative analysis confirmed the fragmented nature of legal and insurance regimes across Europe and Brazil, revealing inconsistencies in coverage scope, funding models, and institutional coordination. Portugal's statutory high-risk regime contrasts with the implicit sectoral recognition seen in Germany, Italy, and France, with collectively bargained insurance schemes in Spain and England, and with the Brazilian law that integrates insurance, labour, and contractual protections within a unified national law. This diversity highlights the challenges of harmonisation in a globalised labour market, where regulatory disparities may create competitive imbalances and vulnerabilities for players, particularly for players operating across borders. Despite regulatory disparities, FIFA's Club Protection Programme offers a minimal layer of harmonisation by insuring players during major international competitions, particularly benefiting those without equivalent club-level coverage. Still, regulatory diversity enables legal innovation and offers opportunities for mutual learning, mainly when supported by international soft-law mechanisms.

Ultimately, this research contributes to a growing interdisciplinary agenda that seeks to reconcile player welfare with financial sustainability and competitive fairness in professional football. By documenting legal and institutional differences and analysing the implications of Portugal's high-risk classification, the study provides a foundation for evidence-based policy and future regulatory convergence.

5.1. Practical Implications

The findings of this study offer several practical implications for stakeholders engaged in regulating, managing, and participating in professional football. First, the Portuguese approach illustrates how a mandatory high-risk classification can form a robust legal basis

for athlete protection. This model demonstrates the feasibility of enforcing comprehensive coverage through binding legal provisions, offering lessons for jurisdictions seeking to strengthen player welfare. Second, four guiding principles emerge as critical to designing sustainable and fair insurance frameworks across professional football: (i) comprehensive and career-long protection, ensuring that players are covered throughout the whole span of their professional lives, including long-term disability and post-career consequences; (ii) balanced cost distribution among stakeholders (clubs, insurers, federations), mitigating financial pressures particularly on smaller clubs; (iii) incentives for injury prevention, such as differentiated premiums based on safety records or investment in medical support infrastructure; and (iv) flexible but coordinated international frameworks, which allow national systems to retain autonomy while aligning on minimum standards for cross-border protection, especially regarding transfer transitions and international duty. Broader coordination remains necessary, particularly as players move across jurisdictions with varying regulatory standards. This is especially pertinent for countries like Portugal, where the professional football business model relies heavily on international player transfers. In such contexts, ensuring consistent and adequate protection is not only a matter of player welfare but also an essential element for preserving the long-term value of clubs' most important assets.

5.2. Limitations and Future Research

While this study offers a comprehensive descriptive overview of the Portuguese insurance framework for professional footballers and its broader regulatory context, several limitations must be acknowledged. First, the analysis is primarily qualitative and descriptive. Although it draws upon existing legislation, insurance structures, and secondary data, it does not empirically measure the effectiveness of the Portuguese model in reducing injury rates, improving rehabilitation outcomes, or enhancing long-term player welfare. These dimensions warrant further investigation using quantitative or mixed-method approaches. Second, the cross-country comparison is necessarily selective, focusing on illustrative contrasts rather than exhaustive benchmarking. Legal heterogeneity, differences in labour law, and the varying roles of collective bargaining across countries make comprehensive comparisons methodologically challenging. Moreover, access to detailed and comparable insurance data across jurisdictions remains limited, hindering broader empirical generalisation.

Future research could address these gaps by evaluating the outcomes of mandatory insurance policies through longitudinal injury databases, player health surveys, or claims records. Comparative studies could examine how different regulatory approaches affect cost efficiency, litigation rates, and player satisfaction. Furthermore, interdisciplinary collaboration across sports medicine, economics, and legal studies could provide a more holistic assessment of risk allocation and welfare protection in professional sport. Finally, the growing commercialisation of football, alongside increasing player mobility, reinforces the need to explore international coordination mechanisms in greater depth. Future work could analyse the feasibility and impact of supranational regulatory standards or transnational insurance pools to address persistent disparities and enhance.

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