

Longitudinal Elite-Career Development in WUFC Athletes in Portugal (1988–2026): Evidence of a High-Level International Competitive Field, Elite Density, Competitive Depth, and Multidisciplinary Transfer

Fernando Loio, PhD

Integrated Researcher, CIEQV — Life Quality Research Centre

ORCID: <https://orcid.org/0000-0001-6760-1896> | WUFC — World Ultimate Full Contact

Website: <https://fernandoloio.com> | Email: fl.fernandoloio@gmail.com

Open Science Framework (OSF), 02 October 2026.

DOI: <https://doi.org/10.17605/OSF.IO/Y69AF>

Abstract

Background and Study Aim:

The World Ultimate Full Contact (WUFC), founded in Portugal in 1988, provides a distinctive historical context for the longitudinal study of career development in international combat sports. Its temporal continuity, geographical diversity of participants, and coexistence of multiple disciplines make it possible to examine the progression of athletes from a common competitive ecosystem to different levels of international achievement. The present study longitudinally reconstructs the athlete population identified in the WUFC competitive corpus and analyses subsequent elite-career development at individual, national, and regional levels. The aims are to quantify Competitive Depth (CD), Elite Density (ED) and its statistical uncertainty, as well as Elite Achievement Intensity (EAI), while additionally examining multidisciplinary career transfer across MMA, pankration, boxing, kickboxing, full contact, grappling, and related combat disciplines. The Fernando Loio Combat Performance Framework (FLCPF) is used exclusively as a secondary interpretive framework and does not constitute a criterion for selection, classification, or determination of longitudinal outcomes.

Material and Methods:

A historical longitudinal archival design was adopted, comprising: (a) reconstruction of the competitive records of the 30 WUFC World Championship editions held between 1988 and 2017 in Viseu, Lamego, and Peso da Régua, and of eight other relevant international WUFC events held in Portugal—three in São Pedro do Sul (2001 and two in 2004), and one each in Vialonga (2002), Ponte da Barca (2003), Vizela (2004), Tábua (2006), and Castanheira de Pera (2008); (b) athlete-level identity resolution and longitudinal follow-up of the corresponding careers; and (c) documentary verification of subsequent competitive achievements. The eight additional events form part of the reconstructed competitive universe but are not counted as additional World Championship editions. The consolidated audit identified 554 unique athletes in the protected historical denominator (UA=554) and 932 fight-participations (FP), corresponding to 466 effectively counted bouts (B). Of these athletes, 182 had qualifying T1–T3 international careers and are included in Table 2. The analysis used Competitive Depth (CD), Elite Density (ED), 95% Wilson confidence intervals (95% CIs), and Elite Achievement Intensity (EAI). Dagestan/North Caucasus was analysed as a regional subgroup nested within Russia, thereby avoiding double counting in national and overall totals.

Results:

The consolidated longitudinal audit identified 182 WUFC athletes with qualifying T1–T3 international careers within a broadly multinational competitive population. The reconstructed denominator was organised into 42 analytical-origin categories, encompassing a larger number of historically documented national and territorial representations; 22 of these analytical origins contributed at least one qualifying T1–T3 career. Overall Elite Density was 32.9% (182/554; 95% Wilson CI 29.1–36.9), with overall EAI = 2.14. Among the national populations with the greatest Competitive Depth, Russia showed an ED of 83.3% (70/84; 95% CI 73.9–89.8), Ukraine 74.4% (32/43; 95% CI 59.8–85.1), Portugal 7.9% (16/202; 95% CI 4.9–12.5), France 25.9% (14/54; 95% CI 16.1–38.9), and Spain 28.6% (10/35; 95% CI 16.3–45.1). Russia showed the greatest Competitive Depth, with 70 of the 182 qualifying careers (38.5%). The documentarily verified Dagestan/North Caucasus subgroup showed an ED of 91.2% (52/57; 95% CI 81.1–96.2), corresponding to 74.3% of Russian CD, with T1/T2/T3 = 14/38/0 and regional EAI = 2.27. The overall T1/T2/T3 distribution was 28/152/2.

Conclusions:

Subsequent significant international career development was unevenly distributed across the reconstructed WUFC athlete population. Competitive Depth, Elite Density, Wilson confidence intervals, and Elite Achievement Intensity provided complementary measures of absolute depth, proportional concentration, statistical uncertainty, and magnitude of subsequent achievement. Russia showed the greatest Competitive Depth, with a pronounced concentration among positively verified athletes from Dagestan and the North Caucasus. These findings do not demonstrate that WUFC participation, national origin, or regional combat culture caused subsequent career success. However, the absence of demonstrated causality does not imply that WUFC participation was developmentally or professionally neutral. Prior athlete selection, pre-existing competitive quality, the international experience and exposure provided by WUFC, and subsequent developmental and career opportunities are interrelated components of the observed trajectories. WUFC is therefore documented as a high-level international competitive platform and a relevant stage of experience, exposure, and career development. The observed trajectories are consistent with adaptive transfer and other dimensions of the FLCPF. The combination of overall Elite Density, observed Competitive Depth, and the magnitude of T1–T3 careers supports describing the WUFC field observed in Portugal as a high-level international competitive environment characterised by a substantial concentration of athletes who achieved international, continental, world-level, or major professional-circuit careers. These subsequent achievements also constitute retrospective longitudinal evidence of the quality and depth of the competitive population already participating in WUFC. In applied terms, the study also provides a descriptive framework for longitudinal monitoring of career trajectories and competitive environments, provided that CD, ED, 95% CIs, and EAI are interpreted jointly rather than as causal, predictive, or ranking instruments.

Keywords:

WUFC · longitudinal career development · combat sports · Competitive Depth · Elite Density · Elite Achievement Intensity · multidisciplinary transfer · ultimate full contact · MMA · pankration · freestyle · boxing · taekwondo · wrestling · sambo · Dagestan · North Caucasus · FLCPF · adaptive transfer

1. Introduction

The development of elite performance in combat sports cannot be understood exclusively through individual talent, isolated technical proficiency, or competition outcomes. Combat-sport expertise emerges through prolonged interaction between athletes, coaches, training environments, competitive structures, cultural traditions, and institutional systems. In disciplines requiring simultaneous competence in striking, grappling, takedowns, submissions, defensive adaptation and decision-making under fatigue, the developmental environment may be particularly important because athletes must acquire and integrate multiple technical-tactical systems rather than specialise in a single performance domain.

The Soviet and post-Soviet combat-sports tradition represents a particularly relevant context for examining these processes. Wrestling, sambo, judo and boxing developed within structured sporting systems characterised by early technical education, extensive competitive exposure and established coaching traditions. Within the Russian Federation, the North Caucasus — particularly Dagestan, but also Chechnya, Ingushetia, Kabardino-Balkaria, Karachay-Cherkessia and neighbouring combat-sport environments — developed an especially dense wrestling and combat-sports culture in which participation extends beyond formal training structures into broader social and cultural practice. (Loio, 2026c).

The World Ultimate Full Contact (WUFC) provides an unusual longitudinal setting in which to examine the competitive expression and subsequent career development associated with these environments. Established in Portugal in 1988, its historical core comprises 30 World Championship editions held through 2017 in Viseu, Lamego, and Peso da Régua. For the present study, this core was analysed together with eight other relevant international WUFC events held in Portugal—three in São Pedro do Sul (2001 and two in 2004), and one each in Vialonga (2002), Ponte da Barca (2003), Vizela (2004), Tábua (2006), and Castanheira de Pera (2008)—all already incorporated into the reconstructed universe. WUFC brought together athletes from multiple countries and combat-sport traditions under formats incorporating pankration, free fight, ultimate full contact, and related hybrid combat rules. Its historical archive therefore provides an opportunity to examine not only immediate competitive outcomes but also the subsequent international trajectories of athletes exposed to the same competitive platform. (Loio, 2021, 2026b; WUFC World Ultimate Full Contact Associação, 1988–2017). The present study does not purport to represent the complete historical universe of WUFC competitions held internationally: the analysed universe corresponds specifically to the corpus of international WUFC events held in Portugal included in the archival reconstruction; WUFC events held in other countries are not included in the denominator or quantitative analyses of the present study.

The competitive format is relevant to this analysis. In tournament editions, athletes could be required to complete multiple bouts within the same competition, meaning that progression through round of 16, quarter-finals, semi-finals and finals required repeated performance against different opponents under accumulating physiological and psychological demands. Consequently, competitive participation can be examined at several complementary levels: individual bout exposure, unique-athlete representation, victories, progression through tournament structures and subsequent career development.

Previous WUFC analyses focused primarily on the systematically documented editions 18–30 (2005–2017) and identified recurrent competitive prominence among Russian and Dagestani athletes. Earlier WUFC career analyses documented 50 athletes with significant and verified subsequent international careers. However, subsequent archival recovery and athlete-by-athlete career verification substantially expanded the historical dataset and demonstrated that the earlier sample represented only part of the population relevant to career development. (Loio et al., 2020a, 2020b; Pinto et al., 2020; Loio, 2021, 2026b).

The present study therefore extends the analytical perspective far beyond the original 50-athlete subset. The consolidated longitudinal audit identifies 182 WUFC participants with qualifying and verified international competitive careers and achievements across MMA, pankration, boxing, kickboxing, full contact, grappling, taekwondo, and related combat disciplines. Historical reconstruction now makes it possible to integrate these 182 athletes into the longitudinal numerator, using 554 unique athletes as the protected historical denominator.

This distinction permits a more informative assessment of international career development than raw victory percentage alone. A small delegation represented by one athlete who subsequently reaches elite level may produce an apparent elite-career proportion of 100%, whereas a much larger population may produce considerably more elite athletes despite having a lower proportional value. Direct comparison of percentages without considering population size would therefore be potentially misleading.

To address this problem, the present study distinguishes three complementary dimensions of subsequent career development. Competitive Depth represents the absolute number of athletes from a country or analytical population who subsequently meet the defined qualifying international career criteria. Elite Density represents the proportion of athletes meeting those criteria relative to the number of unique athletes in that population. Elite Achievement Intensity (EAI) differentiates the subsequent competitive level attained by athletes with qualifying international careers through an ordinal career-tier classification. Elite Density is additionally interpreted with 95% Wilson confidence intervals so that proportions derived from very small samples are not treated as statistically equivalent to estimates derived from substantially larger athlete populations.

This multidimensional approach is particularly relevant to the Russian results. Russia represents a national analytical population, while Dagestan and the wider North Caucasus constitute a nested regional subgroup within that population. The distinction is analytically useful because historical WUFC records did not consistently record regional origin: some North Caucasian athletes were identified as being from specific republics, whereas others appeared simply under Russia. Regional analysis therefore requires athlete-level identification rather than mechanical classification from the historical delegation field.

Historical event representation and analytical athlete origin are likewise treated as distinct variables when justified by biographical evidence. This prevents retrospective alteration of the historical competition record while permitting the career-development analysis to reflect verified athlete origin. The distinction is necessary because delegation, residence, sporting affiliation and biographical origin are not necessarily interchangeable.

The expanded analysis broadens interpretation of the WUFC athlete pathway. The significance of the WUFC population is not limited to athletes who subsequently entered MMA organisations. Career progression is observed across multiple combat disciplines and institutional pathways. This multidisciplinary distribution is particularly relevant to the concept of adaptive transfer within the Fernando Loio Combat Performance Framework (FLCPF), because it allows examination of whether technical-tactical capacities developed within hybrid combat environments are associated with subsequent performance across different competitive rulesets.

The FLCPF provides the theoretical framework for this interpretation. Developed from observational analysis of elite WUFC competition and integrated with ecological-dynamics, representative-learning and combat-performance research, the framework conceptualises performance through seven interacting dimensions: technical-tactical versatility, anticipation, contextual adaptability, representative interaction,

combat affordances, adaptive transfer and physiological integration. The FLCPF is grounded in observational analysis of 170 elite WUFC fights. (Araújo et al., 2006; Davids et al., 2013; Loio, 2026a; Renshaw et al., 2019).

The present study does not, however, assume that subsequent career achievement was caused by WUFC participation or by membership in a particular national or regional sporting culture. The archival design is observational and descriptive and therefore cannot establish such causal relationships. Nevertheless, the absence of demonstrated causality does not imply that WUFC participation was developmentally neutral. Exposure to this international competitive environment can reasonably be considered a relevant component of athletes' accumulated competitive experience, providing contact with diverse opponents, technical-tactical styles, competitive demands, and contextual constraints that may have contributed to the development of competitive competence and adaptability, as well as to the accumulation of experiential resources potentially relevant to athletes and their training communities. Rather than attributing causality to this experience, longitudinal career data are used to identify patterns of competitive depth, concentration, and subsequent achievement that can be interpreted alongside the theoretical and observational evidence underlying the FLCPF.

Accordingly, the study examines whether the competitive prominence observed among Russian and Dagestani athletes is accompanied by a broader and measurable concentration of subsequent international careers meeting the predefined analytical criteria; whether this pattern is particularly pronounced in Dagestan and the wider North Caucasus; and whether multidisciplinary career trajectories are consistent with the interactive dimensions proposed by the FLCPF. Within this framework, WUFC participation is considered a potentially meaningful competitive experience within broader, multifactorial developmental pathways, rather than an isolated or demonstrated cause of subsequent achievement.

It is also important to consider that international participation at WUFC involved prior competitive and federative selection processes. Accordingly, the observed national populations represent competitively selected WUFC populations, rather than random samples of their respective national combat-sport populations. This distinction is taken into account when interpreting Competitive Depth and Elite Density.

1.1 Research Questions

The study addresses three principal research questions:

RQ1. What patterns of subsequent international career development, tracked through 2026, can be identified among athletes who participated in the WUFC international competitive environment between 1988 and 2017?

RQ2. How do national and regional WUFC athlete populations differ in subsequent international career development when evaluated through the complementary dimensions of Competitive Depth, Elite Density and Elite Achievement Intensity, rather than through raw competitive success or proportional measures alone?

RQ3. To what extent are the subsequent multidisciplinary international careers of WUFC athletes — across MMA, pankration, boxing, kickboxing, full contact, grappling and related combat sports — consistent with the seven interacting dimensions of the Fernando Loio Combat Performance Framework (FLCPF) and, particularly, with its concept of adaptive transfer?

These questions are addressed through longitudinal archival competition records, athlete-level career verification and interpretation in relation to the theoretical and observational evidence underlying the FLCPF. The analysis is intended to identify associations and developmental patterns rather than causal effects.

2. Material and Methods

2.1 Study Design

The study used a historical longitudinal archival design combining competitive-record reconstruction, athlete-level identity resolution, longitudinal career follow-up, documentary verification of subsequent achievements, and descriptive statistical analysis. The competitive-exposure window was 1988–2017, and career follow-up was updated through 2026.

The competitive archival component covered the 30 WUFC World Championship editions held between the organisation's foundation in 1988 and the 30th edition in 2017, in Viseu, Lamego, and Peso da Régua. The

corpus was extended to eight other documentarily relevant international WUFC events held in Portugal: three in São Pedro do Sul (2001 and two in 2004), and one each in Vialonga (2002), Ponte da Barca (2003), Vizela (2004), Tábua (2006), and Castanheira de Pera (2008). These additional events form part of the reconstructed competitive universe but were not counted as new WUFC World Championship editions. The 1988–2017 window defines the historical period of competitive exposure analysed in the present study and does not represent the end of WUFC activity. The analysed competitive corpus is therefore geographically delimited to international WUFC events held in Portugal and does not constitute a census of all WUFC events held internationally.

Earlier WUFC analyses focused primarily on editions 18–30 and on a substantially smaller sample of verified careers. The present study incorporates subsequent archival recovery, athlete-level auditing, and the definitive master table, expanding the set of qualifying international careers to 182 athletes and the protected historical denominator to 554 unique athletes.

The study was observational and retrospective. Consequently, all quantitative associations between WUFC participation, national or regional origin, and subsequent career achievement were interpreted descriptively and not as evidence of causal effects.

2.2 Competitive Archive and Unit of Analysis

The primary archival sources consisted of official WUFC competition records, historical written documentation, Excel result files, federation archives, and contemporaneous documentary material relating to WUFC events held in Portugal. The official historical results archive was used as the principal event-level source and was triangulated with independent event databases and contemporary reports when available. The competitive corpus included the 30 WUFC World Championship editions held in Viseu, Lamego, and Peso da Régua and the eight additional international WUFC events held in São Pedro do Sul (2001 and two events in 2004), Vialonga (2002), Ponte da Barca (2003), Vizela (2004), Tábua (2006), and Castanheira de Pera (2008). All of these events are already incorporated into the consolidated values of the reconstructed universe; consequently, explicitly listing them does not alter UA, B, FP, or the longitudinal indicators presented.

The principal quantitative unit for competitive exposure was the fight-participation, defined as one athlete taking part in one actual bout.

Accordingly, if the same athlete competed in a round of 16, quarter-final, semi-final and final during a single edition, that athlete contributed four fight-participations.

For a dataset containing B completed two-athlete bouts:

$$FP = 2 \times B$$

when both competitors are represented in the archival record.

For country or group c:

$$FP_c = \sum b_i$$

where:

FP_c = total fight-participations for country/group c

b_i = number of actual bouts contested by athlete i

This definition differs from unique athlete count. An athlete was counted only once in the unique-athlete denominator regardless of the number of bouts, tournament rounds or WUFC editions in which that athlete participated.

Walkovers, withdrawals or administrative advances in which no actual bout occurred were not treated as fight-participations unless the archival record documented a contested bout.

2.3 Competitive Outcomes

For each country or analytical group, total wins and fight-participations were calculated from the reconstructed competitive records.

The competitive win rate was calculated as:

$$WR_c = (W_c / FP_c) \times 100$$

where:

WR_c = win rate for country/group c

W_c = number of recorded victories

FP_c = number of fight-participations

Win rate describes event-level competitive performance and is conceptually distinct from the career-development indicators described below.

Historical delegation recorded in the original WUFC documentation was retained for event-level variables wherever possible. Consequently, competitive statistics describe the historical competition record rather than retrospectively reconstructed nationality.

2.4 Unique Athletes and Identity Resolution

A second dataset was constructed at athlete level. Each identifiable athlete was assigned a unique record and counted once irrespective of repeated participation across bouts or editions.

Name variants, transliteration differences, spelling inconsistencies and abbreviated historical entries were manually audited. Records were merged only where athlete identity could be established with sufficient confidence through combinations of name, nationality/delegation, weight category, event year, opponent, club/team, biographical information or subsequent career documentation.

Where identity remained uncertain, records were not merged solely on the basis of name similarity.

The number of unique athletes for country/group c was therefore defined as:

UA_c = number of distinct verified athlete identities assigned to country/group c

2.5 Historical Delegation and Analytical Origin

Two geographical variables were retained where necessary:

1. Historical delegation, corresponding to the country or territorial designation recorded in the WUFC event documentation.
2. Analytical origin, corresponding to the athlete's verified biographical national or regional origin used in athlete-level career analysis. In the final nominal review, all 554 identities were assigned an analytical origin.

This distinction prevented retrospective alteration of the competition archive while permitting more accurate athlete-origin analysis where historical representation reflected residence, sporting affiliation, delegation structure or another nationality.

An athlete could therefore contribute to the historical competitive statistics of the delegation represented at WUFC while being assigned to a different verified analytical origin for the career-development analysis.

Such cases were documented explicitly and were never counted twice within the same analytical denominator.

2.6 Dagestan and North Caucasus Regional Classification

Dagestan and the wider North Caucasus were examined as a nested regional subgroup within the Russian Federation, not as an independent country.

Regional classification included positively verified origins in Dagestan, Chechnya, Ingushetia, Kabardino-Balkaria, Karachay-Cherkessia and other verified North Caucasus territories.

Because the historical archive inconsistently alternated between labels such as Russia, Dagestan, Chechnya or individual Russian republics, regional classification was performed nominally at athlete level rather than solely from the historical delegation field.

Athletes were not classified as North Caucasian on the basis of surname, ethnicity inferred from a name, participation in Caucasian competitions or presumed cultural affiliation. Positive documentary or biographical evidence of regional origin was required.

The North Caucasus row was nested within the Russian population and was therefore excluded from national and overall summations to avoid double counting.

2.7 Longitudinal Career Tracking and Qualifying International Career Criteria

Longitudinal career tracking extended through 2026. Accordingly, 2026 was defined as the follow-up cutoff for documentary verification of subsequent athlete career development and achievements. Career information occurring after the athlete's WUFC participation, or relating to the documented continuation of the career after that participation, was eligible for consideration under the predefined qualifying international career and tier-classification criteria. Achievements preceding WUFC participation were retained as

biographical and identification context but were not, on their own, treated as evidence of subsequent development.

WUFC participants were systematically cross-referenced against available career documentation across MMA, pankration, boxing, kickboxing, full contact, grappling, submission fighting, taekwondo and other relevant combat-sports disciplines.

Evidence sources included official federation and promotion records, recognised professional databases, contemporary press archives, competition records and other independently verifiable documentary sources. The official WUFC historical archive was cross-checked, whenever possible, against independent event records and contemporary coverage. Identification and longitudinal reconstruction of athlete careers followed a broad, iterative documentary-search strategy, followed by triangulation and verification of the information retrieved. Sources consulted included the WUFC World Ultimate Full Contact historical archive, federation and promotion records, combat-sports databases, event and results archives, competitive profiles, and contemporary national and international press. Depending on discipline, period and documentary availability, the research corpus included WUFC World Ultimate Full Contact, Sherdog, Tapology, FightMatrix, FightTime.ru, MMA-Core, BoxRec, OnTheMat, UFC, Professional Fighters League (PFL/WSOF), Bellator, Absolute Championship Akhmat/Absolute Championship Berkut (ACA/ACB), M-1 Global, BRAVE Combat Federation, Cage Warriors, GLORY, International Kickboxing Federation (IKF), World Association of Kickboxing Organizations (WAKO), World Boxing Council (WBC), World Boxing Organization (WBO), European Boxing Union (EBU), England Boxing, the Portuguese Judo Federation, Káóčko, SpaceBoxing, and other independently verifiable federation, organisational and journalistic sources. For athletes from Russia, Dagestan, the North Caucasus and the post-Soviet space, the audit also used Russian/CIS sources, including RIA Dagestan, Novoe Delo, Bushido.ru, FightTime.ru, Sport-Nation, and available regional federation and pankration archives. These sources performed complementary functions in career discovery, athlete identification and disambiguation, resolution of transliteration variants, chronological reconstruction, identification of organisations and events, and verification of competitive achievements. Inclusion of a source in the documentary corpus does not imply equal evidential weight. Whenever possible, major career claims were confirmed through official federation or promotion records and/or convergence across independent documentary sources. No single database or source was considered sufficient for reconstructing all careers. The sources were therefore used collectively to reconstruct and verify the longitudinal dataset rather than through a mandatory one-source-to-one-athlete correspondence.

An athlete was included in Table 2 when the available evidence demonstrated a subsequent or continuing competitive trajectory of sufficient international, continental, professional, or multidisciplinary significance according to the operational career criteria established during the audit.

The final consolidated career dataset contained:

N_qualifying,total = 182

Of these:

N_qualifying,statistical = 182

Following reconstruction and adjudication of the foundational period, documentarily confirmed historical participants were incorporated into the protected historical denominator. Thus, the 182 athletes in Table 2 form the longitudinal numerator used in the overall Elite Density calculation.

2.8 Career Achievement Tiers

Each athlete with a qualifying international career was assigned to the highest applicable career tier only, preventing the same athlete from contributing simultaneously to multiple achievement categories.

Tier 1 (T1) — Global Elite. Athletes with verified world-level championship achievement and/or participation within a major global elite competitive orbit.

Tier 2 (T2) — International/Continental Elite. Athletes reaching continental or major regional championship level, competing substantially in major international professional organisations, or demonstrating a sustained and relevant international professional career.

Tier 3 (T3) — Significant International/Institutional Pathway. Athletes demonstrating sustained international competitive relevance, exceptional competitive longevity, or a substantial transition from athlete to coach, promoter or institutional contributor where Tier 1 or Tier 2 criteria were not satisfied.

Career tier was determined from the highest verified achievement rather than the athlete's WUFC result.

For the purposes of the present analysis, a “qualifying international career” is defined as a career meeting the predefined T1–T3 analytical classification criteria and, consequently, the requirements for inclusion in the numerator of the longitudinal analysis. This designation is strictly operational and does not imply that the remaining athletes or their careers lack sporting, historical, or competitive relevance; it indicates only that they did not meet, or could not be documentarily confirmed as meeting, the criteria established for inclusion in that numerator.

Accordingly, R represents the number of athletes documentarily confirmed as meeting the qualifying international career criteria (T1–T3).

2.9 Competitive Depth

Competitive Depth (CD) was used to quantify the absolute number of athletes meeting the qualifying international career criteria observed within each national or regional athlete population.

For country/group c:

$$CD_c = RA_c$$

where:

CD_c = Competitive Depth

RA_c = number of unique athletes meeting the qualifying international career criteria

Competitive Depth was included because proportional measures alone may exaggerate the apparent performance of very small populations.

For example, a group with one athlete meeting the qualifying international career criteria among one participant has a raw Elite Density of 100%, but has produced only one qualifying international career.

CD therefore answers the question:

How many athletes meeting the qualifying international career criteria were observed within the population?

2.10 Elite Density

Elite Density (ED) quantified the proportion of unique athletes from each population who met the qualifying international career criteria.

The formula was:

$$ED_c = (RA_c / UA_c) \times 100$$

where:

ED_c = Elite Density for country/group c

RA_c = number of athletes meeting the qualifying international career criteria

UA_c = number of unique athletes

Elite Density therefore answers:

What proportion of the athlete population met the qualifying international career criteria?

Competitive Depth and Elite Density were interpreted jointly rather than as competing ranking systems.

2.11 Wilson 95% Confidence Intervals for Elite Density

To provide a standardised measure of proportional precision under a binomial model, and because several national populations were small, 95% Wilson confidence intervals were calculated instead of the normal/Wald approximation.

First:

$$\hat{p} = x / n$$

where:

x = number of athletes meeting the qualifying international career criteria

n = number of unique athletes

For a 95% confidence level:

$$z \approx 1.96$$

The Wilson lower limit was calculated as:

$$Lower = [\hat{p} + z^2/(2n) - z \times \sqrt{(\hat{p}(1-\hat{p})/n + z^2/(4n^2))}] / [1 + z^2/n]$$

The Wilson upper limit was calculated as:

$$Upper = [\hat{p} + z^2/(2n) + z \times \sqrt{(\hat{p}(1-\hat{p})/n + z^2/(4n^2))}] / [1 + z^2/n]$$

The interval limits were then multiplied by 100 for presentation as percentages.

Wilson score intervals were used because they provide more reliable coverage than the simple Wald approximation, particularly for small samples and proportions near 0 or 1 (Wilson, 1927).

The confidence interval was used as a measure of precision under the binomial model and not as an independent ranking criterion. These intervals do not quantify uncertainty arising from incomplete archival coverage, identity resolution, analytical-origin classification, or career-tier adjudication.

2.12 Elite Achievement Intensity

Elite Density measures the proportion of athletes meeting the qualifying international career criteria but does not distinguish the magnitude of their subsequent achievements. Elite Achievement Intensity (EAI) was therefore calculated from the career-tier distribution.

Tier weights were defined as:

T1 weight = 3

T2 weight = 2

T3 weight = 1

For country/group c:

$$EAI_c = [3(T1_c) + 2(T2_c) + T3_c] / RA_c$$

where:

T1_c = number of Tier 1 athletes

T2_c = number of Tier 2 athletes

T3_c = number of Tier 3 athletes

and:

$$RA_c = T1_c + T2_c + T3_c$$

Therefore:

$$1.00 \leq EAI \leq 3.00$$

An EAI approaching 3.00 indicates that a greater proportion of the qualifying-career population reached the highest defined career tier.

An EAI approaching 1.00 indicates greater concentration in Tier 3.

EAI answers the question:

How high did the athletes with qualifying international careers subsequently reach?

EAI was treated as a descriptive index constructed for this analysis rather than as a previously validated psychometric or inferential scale.

2.13 Integrated Interpretation of Career-Development Indicators

No composite country ranking was calculated.

The three indicators were deliberately retained separately because they represent different properties of an athlete population:

CD = absolute number of qualifying international careers

ED = proportional concentration of qualifying international careers

EAI = intensity of subsequent achievement

Accordingly, a country with a high Elite Density but a very small denominator was not automatically considered superior to a country with a lower density but substantially greater Competitive Depth.

Sample size and the Wilson 95% confidence interval were considered when interpreting Elite Density.

2.14 Verified North Caucasus Subgroup Analysis

Regional origin was verified nominally at athlete level by cross-checking historical results, previous audits, and final documentary adjudications. Among the 84 unique athletes in the Russian analytical denominator,

57 had positively documented origins in Dagestan or the wider North Caucasus. Of these 57, 52 met the qualifying international career criteria; 14 were classified as T1, 38 as T2, and none as T3.

The regional denominator was therefore closed at UA_NC = 57 within the Russian denominator UA_Russia = 84. Regional classification required positive documentary or biographical evidence and was not inferred from surname, presumed ethnicity, or cultural association.

Regional Elite Density was calculated as:

$$ED_NC = (RA_NC / UA_NC) \times 100$$

Using the consolidated values:

$$ED_NC = (52 / 57) \times 100 = 91.2\% \text{ (95\% Wilson CI 81.1–96.2)}$$

The subgroup's contribution to Russian Competitive Depth was $52/70 = 74.3\%$. The intensity of subsequent achievement was $EAI_NC = [3(14) + 2(38) + 0] / 52 = 2.27$. Thus, the subgroup is characterised by UA_NC = 57, CD_NC = 52, ED_NC = 91.2% (95% CI 81.1–96.2), a 74.3% contribution to Russian CD, T1/T2/T3 = 14/38/0, and EAI_NC = 2.27.

Dagestan/North Caucasus remains nested within Russia and is not independently added to national or overall totals.

2.15 Overall Elite Density

For the principal statistical population, overall Elite Density was calculated as:

$$ED_overall = (\Sigma RA_c / \Sigma UA_c) \times 100$$

Using the consolidated dataset:

$$ED_overall = (182 / 554) \times 100 = 32.9\%$$

The North Caucasus subgroup was not added separately to the denominator or numerator because it is nested within Russia.

2.16 Methodological Reflexivity

The principal investigator occupied an insider position within the field under investigation, having acted across the WUFC system as athlete, coach, founder/promoter, federation officer, manager and international representative. These roles and their reflexive implications are explicitly acknowledged in the present study. (Mercer, 2007; Unluer, 2012).

This position provided prolonged engagement, access to historical documentation and contextual knowledge, but also introduced potential risks of selection, interpretation and confirmation bias.

To mitigate these risks, the analysis used explicit operational definitions, athlete-level audit trails, separation of historical delegation from analytical origin, conservative identity resolution, documentary verification of major career achievements, transparent treatment of unresolved regional origins and quantitative indicators calculated from reproducible formulas.

Insider knowledge was used to identify records and contextualise findings, but was not treated as a substitute for documentary evidence when assigning athlete identity, regional origin or career tier.

2.17 Statistical Analysis

The quantitative analysis was primarily descriptive and exploratory.

For each national or regional analytical population, the following variables were calculated where data permitted:

FP = fight-participations

W = wins

$$WR = (W / FP) \times 100$$

UA = unique athletes

RA = athletes meeting the qualifying international career criteria

CD = RA

$$ED = (RA / UA) \times 100$$

$$EAI = [3(T1) + 2(T2) + T3] / RA$$

Wilson 95% confidence intervals were calculated for binomial proportions.

Values were reported as counts, percentages and confidence intervals as appropriate.

Percentages were generally rounded to one decimal place.

No null-hypothesis significance test was used to claim that one country or regional ecosystem caused superior career development.

Similarly, overlapping or non-overlapping confidence intervals were not interpreted as formal proof of between-country statistical significance in the absence of a prespecified inferential comparison.

The analyses were intended to characterise competitive volume, career depth, career density, achievement intensity and regional concentration within the reconstructed WUFC population.

Table 1. Consolidated Analytical Dataset and Principal Indicators

Domain	Value	Operational meaning
Historical coverage	30 World Championship editions + 8 additional international events, 1988–2017	WUFC international competitive corpus held in Portugal
Longitudinal career follow-up	Through 2026	Documentary follow-up of subsequent athlete career development
Effectively counted bouts (B)	466	Two-athlete bouts effectively contested and documented in the reconstructed competitive corpus
Fight-participations (FP)	932	One athlete contesting one effectively held bout; $FP = 2 \times B$
Attributable wins	457	Wins with a documentarily attributable winner; draws/Match Null do not count as wins
Unique athletes (UA)	554	Protected historical denominator after athlete-level identity resolution
Qualifying international careers (RA/CD)	182	Table 2 athletes meeting T1–T3 criteria and included in the longitudinal numerator
Overall Elite Density	32.9%	182/554
Overall 95% Wilson CI	29.1–36.9%	Uncertainty interval for overall ED
Career tiers	T1/T2/T3 = 28/152/2	Highest verified level per athlete
Overall EAI	2.14	$[3(T1)+2(T2)+T3]/RA$

Note. ED = Elite Density; CD = Competitive Depth; EAI = Elite Achievement Intensity; T1 = Global Elite; T2 = International/Continental Elite; T3 = Significant International/Institutional Pathway. Historical totals are reconstructed from the WUFC competitive corpus, which includes the 30 World Championship editions held in Viseu, Lamego, and Peso da Régua and eight other relevant international WUFC events held in Portugal, as well as prior WUFC analyses (Loio, 2021, 2026b; WUFC World Ultimate Full Contact Associação, 1988–2017).

3. Results

The reconstructed competitive dataset covered the historical WUFC window of 1988–2017, integrating the 30 World Championship editions and the eight additional international events defined in the Methods. The latter are already included in the consolidated totals and do not constitute additional World Championship editions. The corpus represents the historical competitive exposure from which longitudinal career follow-up was conducted through 2026.

3.1 Longitudinal Competitive Population and Country-Level Career Development

The final consolidated dataset comprised 466 effectively counted bouts, 932 fight-participations, 457 attributable wins, and 554 unique athletes in the protected historical denominator. Table 1 summarises the updated analytical dataset. Table 2 documents 182 athletes with qualifying international careers. Overall Elite Density was 32.9% (182/554; 95% Wilson CI 29.1–36.9%), and the tier distribution was T1/T2/T3 = 28/152/2, with overall EAI = 2.14.

The longitudinal audit identified 182 WUFC athletes with qualifying and verified international competitive careers and achievements, all retained in the longitudinal numerator. The protected historical denominator comprises 554 unique athletes. Analytical national origin is closed for all 554 identities, while historical delegation recorded at the event is preserved separately where applicable.

Across the principal statistical population, overall Elite Density was:

$$182 / 554 = 32.9\%$$

with a 95% Wilson confidence interval of 29.1–36.9%.

These findings substantially extend the previous career-tracking analysis, which had identified only 50 athletes with verified significant international or institutional careers. The expanded audit therefore indicates that the previous 50-athlete sample represented a conservative subset of a substantially larger longitudinal career-development population.

3.1.1 Russia: Competitive Depth, Elite Density and Achievement Intensity

Russia showed the greatest Competitive Depth in the longitudinal cohort: 70 of the 182 qualifying international careers (38.5%).

The tier distribution was T1/T2/T3 = 14/56/0, yielding $EAI = [3(14) + 2(56)] / 70 = 2.20$.

The reconstructed denominator for Russian analytical origin was UA=84. Russian Elite Density was therefore 83.3% (70/84; 95% Wilson CI 73.9–89.8). This value describes only the Russian population observed in the WUFC corpus and should be interpreted jointly with CD=70, the T1–T3 distribution and EAI, without extrapolation to the national population of combat-sport practitioners.

The magnitude of Russian Competitive Depth does not imply causality. The WUFC population was competitively selected, and subsequent trajectories reflect multiple factors preceding, accompanying, and following WUFC participation.

3.1.2 Dagestan / North Caucasus: Nested Regional Concentration

Nominal cross-checking of the 84 athletes in the Russian denominator identified 57 unique athletes with positively documented origins in Dagestan or the wider North Caucasus. Of these, 52 met the qualifying international career criteria, corresponding to regional ED = 91.2% (52/57; 95% Wilson CI 81.1–96.2). Within the subgroup, 14 athletes reached T1 and 38 reached T2, with no T3 cases, corresponding to $EAI = 2.27$. The 52 cases represent 74.3% of the 70 qualifying Russian careers.

This regional analysis uses a closed UA denominator based on nominal verification and keeps Dagestan/North Caucasus fully nested within Russia, avoiding any double counting in national or overall totals.

The subgroup includes positively verified origins in Dagestan, Chechnya, Ingushetia, Kabardino-Balkaria, Karachay-Cherkessia, and other documented North Caucasus territories.

Regional classification was performed nominally and required positive evidence; it was not inferred from surname, presumed ethnicity, or mere participation in Caucasian competitions.

The subgroup remains nested within Russia and is not added independently to overall totals.

3.1.3 Ukraine

Ukraine contributed 32 qualifying international careers, corresponding to 17.6% of the 182-athlete cohort.

The tier distribution was T1/T2/T3 = 1/31/0, with $EAI = 2.03$.

This represents the second-greatest Competitive Depth in the cohort. Interpretation should recognise that WUFC participants constituted a competitively selected population rather than a random sample of Ukrainian combat-sport practitioners.

With the national denominator fully reconciled, Ukraine has UA=43, CD=32, and ED=74.4% (95% Wilson CI 59.8–85.1), values that should be interpreted jointly with Competitive Depth, the T1–T3 distribution, and EAI.

3.1.4 Portugal and the Host-Nation Effect

Portugal contributed 16 qualifying international careers (8.8% of the cohort), with T1/T2/T3 = 2/13/1 and $EAI = 2.06$.

Interpretation of the Portuguese results requires attention to the host-nation effect: Portuguese athletes had, in different periods, greater logistical proximity and repeated opportunities to participate, whereas many foreign delegations resulted from prior international selection processes.

For this reason, differences in Competitive Depth should not be converted directly into inferences about national development quality.

Analytical national origin is closed for the UA=554 denominator; Elite Density is therefore presented by country/origin in Table 3, always with the corresponding UA and 95% Wilson CI.

3.1.5 Other National Populations

Beyond Russia, Ukraine and Portugal, 14 qualifying careers were observed among athletes of French origin (7.7%; T1/T2/T3 = 3/11/0; EAI = 2.21), 10 among athletes of Spanish origin (5.5%; 3/7/0; EAI = 2.30), 7 among athletes of Armenian origin (3.8%; 2/5/0; EAI = 2.29), and 7 among athletes of Brazilian origin (3.8%; 2/4/1; EAI = 2.14).

The United Kingdom and Sweden each contributed four qualifying careers (2.2%; EAI = 2.00); Argentina and Belgium each contributed three (1.6%; EAI = 2.00); and the Czech Republic contributed two (1.1%; EAI = 2.00).

Azerbaijan, Cyprus, Georgia, Iraq, Moldova, Monaco, Romania, Syria, Germany, and Saint Kitts and Nevis each contributed one qualifying career (0.5% of the cohort). The Iraqi case is T1 with EAI = 3.00; the remaining single cases are T2 with EAI = 2.00. The USA contributed no T1–T3 career to the longitudinal numerator.

These values describe the distribution of the qualifying cohort by analytical origin. They do not constitute national rankings or estimates of the prevalence of elite careers in general national populations.

3.1.6 Iraq and the Distinction between Historical Delegation and Analytical Origin

The distinction between historical delegation and analytical origin remains necessary. Amir Albazi, for example, was historically associated with Swedish representation in the competitive archive but is classified under Iraq in the career-origin analysis.

Accordingly, historical event statistics should preserve the delegation recorded at WUFC, whereas the longitudinal synthesis by origin uses the documentarily supported biographical classification.

This separation avoids retrospectively rewriting the competitive archive and prevents double counting within the same analytical denominator.

3.1.7 Why Elite Density Alone Does Not Constitute a Ranking

The results demonstrate the importance of distinguishing absolute career depth from proportional career density.

National ED is used as a descriptive measure of the concentration of qualifying careers within each reconstructed WUFC population, not as an instrument for ordering or evaluating countries.

Russia had 70 qualifying international careers among 84 unique athletes of Russian analytical origin (ED=83.3%; 95% CI 73.9–89.8), corresponding simultaneously to 38.5% of the longitudinal cohort of 182 qualifying careers. National comparison is presented through joint interpretation of UA, CD, ED, 95% CI, T1–T3 distribution, and EAI, avoiding conversion of any single indicator into a ranking.

Elite Density values are therefore interpreted in relation to the denominator, confidence-interval precision, Competitive Depth, and Elite Achievement Intensity.

The combined interpretation of the three principal indicators revealed a substantially different structure:

Russia: Competitive Depth = 70; 38.5% of the 182 qualifying careers; EAI = 2.20

Dagestan / North Caucasus: UA = 57; CD = 52; ED = 91.2% (95% CI 81.1–96.2); 52/70 = 74.3% of Russian CD; subgroup nested within Russia

Ukraine: Competitive Depth = 32; 17.6% of the 182 qualifying careers; EAI = 2.03

Portugal: Competitive Depth = 16; 8.8% of the 182 qualifying careers; EAI = 2.06

The integrated interpretation shows that, within the observed Russian population, high Competitive Depth, high Elite Density, and high EAI coexist with a pronounced internal concentration of qualifying careers in Dagestan and the wider North Caucasus.

3.1.8 Expansion of the Previously Documented WUFC Career Population

The expanded career audit establishes a substantially broader quantitative basis for longitudinal career analysis than earlier WUFC research.

Earlier WUFC career audits contained only 50 athletes, and several additional Russian and Dagestani WUFC champions were explicitly excluded because their subsequent careers had not yet met the required verification standard.

Several athletes previously listed as examples of unverified additional careers — including Arsen Tlisov, Jamal Magomedov, Mukhamed Aushev, Alikhan Magomedov, Gadzhi Gadzhiev, Kamal Magomedov, Murtuz Suleimanov and Abdula Dadaev — were subsequently recovered and evaluated during the expanded

audit. The earlier manuscript itself recognised that the 50-athlete sample constituted a conservative lower bound.

The final consolidated Table 2 now documents 182 athletes with qualifying international careers, demonstrating that the WUFC population with relevant international development was substantially broader, more geographically diverse, and more multidisciplinary than was apparent in earlier analyses.

The expanded evidence includes career trajectories across MMA, pankration, professional boxing, kickboxing, K-1, full contact, grappling, submission competition, taekwondo and associated coaching or institutional pathways.

Consequently, subsequent sections interpret WUFC career development not as a single MMA pipeline, but as a multidisciplinary international combat-sports pathway.

3.2 The WUFC as an International Career Platform

The distinction between the 1988–2017 historical competitive-event window and career follow-up through 2026 is central to the longitudinal interpretation. The former includes the 30 WUFC World Championship editions and the eight additional international WUFC events incorporated into the reconstructed corpus, defining exposure to the historical WUFC competitive environment; the latter defines the observation period within which subsequent international career development was documented.

The expanded longitudinal audit supports a broader interpretation of WUFC athletes' career pathways. According to previous research (Loio, 2026c), WUFC is described as a “launch platform,” contributing to the promotion, international projection, and opening of new competitive opportunities for its athletes. This function is particularly relevant for Russian and Dagestani athletes, especially during the period preceding the broader emergence of Dagestani athletes in the UFC. Athletes from these systems were present at WUFC for seven consecutive years, from 2005 to 2011, before the international projection subsequently achieved by Dagestani athletes in the UFC and other professional circuits. Participation and the visibility attained at WUFC contributed, in several documented cases, to the creation of subsequent international competitive opportunities.

The dataset supports a broader, but more cautious, conclusion.

WUFC participation is associated with a substantial number of subsequent international careers across combat sports. Although the observational nature of the evidence does not permit the event to be identified as the causal mechanism responsible for those careers, athlete visibility, the exposure provided by the event, and the contacts established within this context could generate further competitive opportunities. WUFC is therefore more appropriately characterised as a high-level international competitive platform, a context for exposure and visibility, and a relevant career stage, in which athletes from different national and disciplinary systems could compete under demanding hybrid-combat conditions, acquire international experience, and demonstrate their competitive qualities.

The expanded Table 2 identifies 182 athletes with qualifying and verified international careers, compared with the 50 athletes documented in the previous WUFC analysis (Loio, 2026c). The increase results from archival recovery, identity resolution, and additional longitudinal verification.

The new audit confirms that the WUFC athlete population contained a substantially broader range of international career trajectories than previously documented.

3.2.1 From a 50-Athlete Subset to a Longitudinal Cohort of 182 Qualifying Careers

Earlier WUFC career audits documented 50 athletes across MMA, boxing, pankration and grappling and explicitly highlighted Russian and Dagestani athletes as examples of progression toward major international organisations.

Table 2 expands this population to 182 athletes who meet the qualifying international career criteria and substantially changes the evidential basis of the study.

First, the career-development phenomenon is no longer represented by a small collection of exceptional cases. It is observable across a substantially larger longitudinal population.

Second, the career trajectories are not confined to MMA. They include significant subsequent achievement in:

1. MMA;

2. *pankration*;
3. *professional boxing*;
4. *kickboxing*;
5. *K-1*;
6. *full contact*;
7. *grappling*;
8. *submission fighting*;
9. *taekwondo*;
10. coaching and institutional combat-sports pathways.

Third, the expanded population permits the career evidence to be linked quantitatively to national and regional athlete denominators through Competitive Depth, Elite Density and Elite Achievement Intensity.

Table 2 therefore functions as the athlete-level evidential foundation, while Table 3 provides the population-level quantitative synthesis.

3.2.2 Career Progression Across Different Competitive Levels

The career trajectories represented in Table 2 range from major global championship achievement to sustained international and continental careers.

At the highest level, the WUFC athlete population includes competitors who subsequently reached major organisations and championship environments such as UFC, PFL, WSOF, Bellator, M-1 and high-level professional boxing. The previous manuscript already documented examples including Magomed Magomedkerimov, Timur Valiev, Magomed Bibulatov, Sultan Aliev, Amir Albazi and Medzhid Bektemirov.

The audit broadens this evidence beyond these highly visible examples.

The significance of the Table 2 cohort is therefore not that every selected athlete reached the same competitive level. Rather, it demonstrates a continuum of subsequent international achievement, captured through the T1/T2/T3 classification.

This distinction is important because “elite career development” is not a binary outcome. A world champion, a long-term competitor in major international promotions, a continental champion and an athlete with a substantial international multidisciplinary career do not represent identical outcomes.

For this reason, the present study separates:

Whether a qualifying international career occurred
from:

How high the verified career subsequently reached

The first dimension contributes to Competitive Depth and Elite Density.

The second is represented through the Tier classification and Elite Achievement Intensity.

3.2.3 Multidisciplinary Career Transfer

One of the strongest findings of the expanded audit is the breadth of subsequent career disciplines.

The former version already showed that the WUFC athlete pathway extended beyond MMA, citing, for example, the professional boxing career of Medzhid Bektemirov and the international kickboxing career of Stéphane Susperregui.

The 182-athlete cohort substantially reinforces this observation.

Athletes who competed within WUFC environments subsequently demonstrated relevant achievement under rules that differed substantially in permissible techniques, tactical structure, temporal demands and competitive objectives.

This provides an important observational context for the FLCPF concept of adaptive transfer.

The evidence does not demonstrate that WUFC participation itself generated the ability to transfer between disciplines. Rather, it demonstrates that athletes participating in the WUFC population frequently possessed or subsequently demonstrated capacities that remained functional across different competitive environments.

The observed pattern may therefore be represented as:

Hybrid / multidisciplinary competitive exposure

+ pre-existing technical foundations

+ subsequent specialised development

→ qualifying international careers across multiple combat-sport contexts

This is compatible with the FLCPF proposition that adaptable technical-tactical repertoires may support performance under changing task constraints.

3.2.4 Concentration of Russian and North Caucasus Careers

The expanded Table 2 also gives greater quantitative context to the Russian and North Caucasus pattern.

Among the principal statistical population:

Qualifying international careers of Russian analytical origin = 70

and:

careers with positively documented origins in Dagestan/North Caucasus = 52

Thus:

$52 / 70 = 74.3\%$

of Russian Competitive Depth was concentrated in the verified Dagestan/North Caucasus subgroup; within the closed regional denominator, $52/57 = 91.2\%$ met the T1–T3 criteria.

This result is based on the final cohort of 182 qualifying international careers and the protected historical denominator of 554 unique athletes.

The analysis therefore shows that the Russian/North Caucasus pattern is not merely visible among a handful of internationally famous athletes. It persists within a substantially expanded athlete-level career cohort.

However, the finding should still be interpreted as an association between regional origin and observed career concentration. It does not demonstrate that regional origin independently caused superior career development.

3.2.5 Historical Chronology and the Pre-UFC Period

The chronology identified in the previous manuscript remains relevant, but its interpretation should be moderated.

Russian and Dagestani athletes were already competing at WUFC events before the period in which North Caucasian fighters became widely represented in the UFC and other major global MMA organisations. The previous manuscript highlighted a sequence involving WUFC participation by Magomedkerimov, Sultan Aliev, Timur Valiev and Bibulatov before or during their subsequent progression into larger professional circuits.

This chronology supports the description of WUFC as an international competitive environment available during an important stage of these athletes' careers.

It does not, however, establish that WUFC participation was necessary or sufficient for later entry into UFC, PFL, Bellator or other organisations.

Accordingly, the interpretation is:

WUFC provided documented international competitive exposure within the career histories of several athletes who subsequently reached major global organisations.

This formulation preserves the historical importance of the event without overstating causality.

Although the present retrospective design does not permit a causal relationship to be established between WUFC participation and subsequent career success, participation in a high-level international competitive environment can reasonably be considered a relevant component of an athlete's accumulated competitive experience. Exposure to diverse opponents, technical-tactical styles, competitive demands, rulesets, and international sporting communities may have contributed to the progressive development of competitive competence and to the experiential resources subsequently available to athletes and their training communities. Accordingly, WUFC participation is interpreted here not as a demonstrated cause of later achievement, but as one potentially meaningful competitive experience within a broader, multifactorial developmental pathway.

3.2.6 Table 2 as a Career-Tracking Dataset

Table 2 should be interpreted as a selected career-tracking dataset, not as a ranking of the best WUFC athletes.

Inclusion depended on the availability of sufficiently strong evidence demonstrating significant international competitive careers or achievements.

The table therefore documents:

1. WUFC participation;
2. analytical nationality/origin;
3. significant verified subsequent or continuing career achievement;
4. relevant titles and organisational affiliations;
5. multidisciplinary pathways where applicable;
6. highest applicable career tier.

Importantly, defeat or victory against specific opponents is not used as the basis for later-career relevance. The purpose of Table 2 is to document what the athlete subsequently achieved, not to retrospectively evaluate the quality of an individual WUFC bout through the opponent's identity.

The table also preserves historical participation details where these are relevant to athlete identification and longitudinal tracking.

3.2.7 Relationship between Table 2 and Table 3

Tables 2 and 3 answer different but complementary questions.

Table 2 asks:

Who were the selected athletes, and what did they subsequently achieve?

Table 3 asks:

How were those qualifying international careers distributed across the underlying national and regional WUFC populations?

Table 2 provides the identities and evidence for the 182 careers constituting the longitudinal numerator; Table 3 synthesises the distribution of these careers by analytical origin, presenting UA, CD, ED, Wilson 95% CIs, T1–T3 tiers, and EAI for the reconstructed national populations, in addition to the overall UA=554 total.

This distinction is essential.

Without Table 2, Table 3 would reduce athlete careers to anonymous counts.

Without Table 3, Table 2 could overemphasise striking individual examples without showing how frequent such trajectories were within each population.

Together, the two tables permit interpretation at both the individual career level and the population level.

3.2.8 Interpretation as a Career Platform Rather than a Causal Pipeline

The evidence supports describing WUFC as an international career platform in combat sports, but not as a proven causal development pipeline.

This distinction is methodologically important.

The data show that:

1. a large number of athletes subsequently developed significant international careers;
2. these careers occurred across multiple combat disciplines;
3. qualifying international careers were unevenly distributed across national and regional populations;
4. Russia showed the greatest Competitive Depth;
5. Dagestan/North Caucasus had UA = 57, CD = 52, and ED = 91.2% (95% CI 81.1–96.2), while simultaneously accounting for 74.3% of the Russian qualifying-career cohort.

The data do not establish that WUFC participation caused these subsequent achievements.

Accordingly, the strongest defensible conclusion is that WUFC constituted a high-level international competitive platform and a relevant stage of experience, exposure, and career development for a substantial population of combat-sports athletes, contributing, in documented cases, to the opening of new competitive opportunities.

3.3 Table 2 — WUFC Athletes with Significant Verified International Competitive Careers and Achievements

Table 2. *Athletes from WUFC International Events Held in Portugal with Significant Verified International Competitive Careers and Achievements*

ID	Athlete	Country / region	Consolidated competitive career record	Organisations / disciplines / longevity	Tier
1	Magomed Magomedkerimov / Магомед Магомедкеримов	Russia—Dagestan; Agvali→Makhachkala	World Champion Pankration/WUFC Portugal 2008; World Championships Pankration Omsk 2009 and Varna 2010; World Cup Baku 2009; European 2009/medal according to discrepancy among sources; Army H2H, Muay Thai and Kudo; 2× PFL Welterweight World Champion 2018/2023; finalist PFL 2020	WUFC; PFL; ATT; MMA; Pankration; Army H2H; Muay Thai; Kudo; ≥2008	T1
2	Magomed Bibulatov / Магомед Бибулатов	Russia—Chechnya; Achkhoy-Martan/Grozny	World WUFC Champion 2013; WSOE Flyweight World Champion; champion WFCA; winner ACB GP; 4× World Kick-Jitsu; 2× World and 5× Russian JUKADO; 4× World Kenpo	UFC; WSOE; WFCA; ACB/ACA; MMA; Kick-Jitsu; JUKADO; Kenpo	T1
3	Said Nurmagomedov	Russia—Dagestan	Junior WUFC Champion 2009; WFCA champion; World, European and Russian champion in amateur MMA; international UFC career	WUFC; WFCA; ACB/ACA; UFC; MMA	T1
4	Timur Valiev “The Lucky”	Russia—Dagestan/Makhachkala	WUFC 2010; Pankration World/European Champion and World Cup bronze medallist according to the biographical career record; Russian Open Grappling winner; Kudo/H2H achievements; WSOE/PFL/UFC/ACA; UFC win over Raoni Barcelos	WSOE; PFL; UFC; ACA; Sambo; Pankration; BJJ; Grappling; Kudo; H2H	T1
5	Sultan Aliev	Russia—Dagestan/Kaspiysk	WUFC World Champion 2013; FIAS Combat Sambo World Champion 2014 and 2020 at -90 kg; Kharlampiev World Cup 2019; Russian/European achievements; Bellator/UFC	FIAS; Bellator; UFC; ProFC; FNG; Combat Sambo; MMA	T1
6	Medzhid Bektemirov “B-52”	Russia—Dagestan→USA	WUFC World Champion 2007; Professional Pankration World Champion; Wushu-Sanda; subsequent WBC-USNBC/Texas LHW professional boxing champion	WUFC; WBC-USNBC; Boxing; Pankration; Wushu-Sanda	T1
7	Maratbek Kalabekov	Russia—Dagestan	2× World WUFC Champion 2008/09; multiple-time Pankration World Champion; professional wins over Zalim Khotov and Artem Damkovsky; faced Alexander Samavskiy	WUFC; ProFC; M-1; Pankration; MMA	T2
8	Sergey Kornev	Russia—Rostov-on-Don	WUFC World Champion 2008; three tournament wins over Zakaryan, Berteaux and Rafael Silva; ~11–2 reconstructed; seven bouts in the M-1 ecosystem	WUFC; M-1 Global/Challenge; Legion Fight; MMA	T2
9	Mukhamed Aushev / Мухамед Аушев	Russia—Ingushetia; Nazran	World WUFC Champion 2010; World Champion Pankration; ~18–4 ACA; win over Ramazan Emeev; long career	Nart; Peresvet FT; M-1; ProFC; ACB/ACA; Pankration; MMA; ≥2004–21+	T2
10	Marat Pekov “The Circassian Outlaw”	Russia—Kabardino-Balkaria; Baksan	World WUFC Champion 2009; gold FCF Russia 2007, Eurasia 2008, International 2009; European Pankration 2010; World Pankration 2011; historical Russian record 22–3	K-Dojo; FCF; ProFC; FNG; Cage Warriors; Pankration; MMA	T2
11	Salimgerey/Salimgirey Rasulov “Gubden Tank”	Russia—Dagestan	World WUFC Champion 2007; long career HW; ~24–12 in modern databases; FightMatrix #19 HW 2022; active through ACA 190 in 2025	WUFC; M-1; ACB/ACA; Fighting Eagle; MMA; 2007–25	T2
12	Sharamazan Chupanov	Russia—Dagestan	World WUFC Champion 2014; 2× World Champion Pankration; 9–3–1; FightMatrix #194 BW	WUFC; Krepost; FNG; MMA; Pankration	T2
13	Kamal Magomedov	Russia—Dagestan	World WUFC Champion 2014; European Champion WMMAA; Titan FC Champion; BRAVE/FNG/RCC/ZST	WMMAA; Titan FC; BRAVE CF; FNG; RCC; ZST	T2

Loio, F. (2026). Longitudinal elite-career development in WUFC athletes in Portugal (1988–2026): Evidence of a high-level international competitive field, elite density, competitive depth, and multidisciplinary transfer. OSF. <https://doi.org/10.17605/OSF.IO/Y69AF>

ID	Athlete	Country / region	Consolidated competitive career record	Organisations / disciplines / longevity	Tier
14	Rustam Tashuev	Russia—Kabardino-Balkaria	2× WUFC World Champion 2008/14; 5–5; five wins by stoppage/submission; defeated Gasbula Ismailov in 2014 by medical stoppage	WUFC; M-1; Russian Mix Fight; Pancration in the Cage	T2
15	Gadzhi Gadzhiev	Russia—Dagestan/Makhachkala	WUFC 2013; multiple Pancration World Championship titles; Dagestan national team; champion confirmed in post-event report	WUFC; Pancration; Free Fight; MMA	T2
16	Imanali Gamzathanov	Russia—Dagestan; 23/12/1988	WUFC 2009–10; finalist 2010; 11–4; FightMatrix #80 LW 2019; ACA through 2020	Champion; ProFC; FNG; WFCA; ACA; MMA; Pancration	T2
17	Ayub “Tikhy” Gimbatov	Russia—Dagestan/Makhachkala	WUFC Champion 2012; 10–1, 1 NC; 6 SUB, 3 KO/TKO; wins over Maiquel Falcão, Dauren Ermekeov and Steve Kennedy	Academy MMA Makhachkala; FNG/EFN; Rebel FC; 2012–20	T2
18	Andranik Ashugyan	Russia/Armenia	multiple WUFC participations/titles; ~2006–15; multidisciplinary career record	WUFC; M-1/EFN; MMA; Pancration; Combat Sambo	T2
19	Artur Guseinov	Russia—Dagestan	World WUFC Champion 2015; extensive international professional career	M-1; ProFC; ACA; FNG; RCC; BRAVE CF	T2
20	Murtuz Suleimanov	Russia—Dagestan	World WUFC Champion 2014 -84.5; titles World/professional Pancration	WUFC; Pancration; MMA	T2
21	Alikhan Magomedov	Russia—Dagestan	WUFC World Champion 2013; 6–6 Sherdog / up to 11–6 in Russian aggregators; strong M-1 opposition	M-1; Pancration in the Cage; MMA; Pancration	T2
22	Shamil Magomedov	Russia—Dagestan	World WUFC Champion Absolute/+100 kg 2007; international achievements Grappling/BJJ	WUFC; Grappling; BJJ	T2
23	Magomed Saadulaev “The Rock”	Russia—Dagestan	WUFC Champion 2009; wins Boguslavskiy/Kardanov; strong initial sequence; multiple wins ProFC; Sambo	ProFC; Kstovo Sambo Federation; MMA; Sambo	T2
24	Magomed Gadzhiev	Russia—Dagestan	World WUFC Champion K-1 2009; international career striking	WUFC; K-1; Kickboxing	T2
25	Arsen Tlisov	Russia	WUFC World Champion 2010 -93; 3–0 professional in the consulted Russian databases	ProFC; MMA; Pancration	T2
26	Abdula Dadaev	Russia—Saint Petersburg	World WUFC Champion 2014 -72.5; international professional career	K-Dojo; MMA	T2
27	Miri Sadigov	Russia—Omsk	World WUFC Champion 2016; professional career	ACA; MMA Series Russia	T2
28	Aslan/Arslan Bektemirov	Russia—Dagestan	World WUFC Champion 2007; Wushu-Sanda/MMA	WUFC; Wushu-Sanda; MMA	T2
29	Kurban Gadzhiev	Russia	WUFC World Champion 2013 -59; confirmed among the Dagestani champions	WUFC; MMA; Pancration	T2
30	Valid Isaev/Ishaev	Russia—Chechnya	World WUFC Champion 2013; international career	WUFC; MMA	T2
31	Dmitrii Zabolotnyi	Russia—Kaliningrad	World WUFC Champion 2016; international HW career	M-1; KSW; ACA	T2
32	Artur Alibulatov	Russia—Dagestan	WUFC Full Contact Champion 2009; Caspian Cup youth Pancration 2008; >20 professional wins	PFL; M-1; ProFC; FNG/AMC; Pancration; MMA	T2
33	Jamal/Dzhamal Magomedov	Russia—Dagestan	World WUFC Champion 2010; multiple wins; international career	Cage Warriors; MMA	T2
34	Dmitriy Korobeynikov	Russia—Karachay-Cherkessia	WUFC 2009; ~20 bouts; international sustained career	M-1; ACB; FNG; ProFC; Tech-Krep	T2
35	Akhmed Sultanov	Russia	World WUFC Champion 2008; international career	M-1 Challenge; Bodog; Legion	T2
36	Aliyar Sarkerov	Russia	finalist WUFC; multiple wins; defeated Baragunov and Ghilescu in 2009; extensive career	Kunlun Fight; MMA	T2

ID	Athlete	Country / region	Consolidated competitive career record	Organisations / disciplines / longevity	Tier
37	Bagautdin Abasov	Russia	multiple wins WUFC; >30 bouts; subsequent activity institucional/promocional	FNG; Kunlun; Eagle FC; ACA; RCC; AFC	T2
38	Ratmir Teuvazhukov	Russia	WUFC 2009; long professional career	M-1; ACB; WFCA; Tech-Krep	T2
39	Magomed Umarov	Russia	finalist WUFC 2008; MMA/Pankration	ProFC; M-1; Pankration Caucasus Cup	T2
40	Kurbanali Abdusalamov	Russia—Dagestan	finalist WUFC; 6–4; win M-1 over Lee Morrison	M-1 Challenge; Fighting Eagle	T2
41	Andrii Liezhniev	Ukraine	World WUFC Champion 2008; significant international career	ProFC; KSW; EFN/ACA-related	T2
42	Andrii Mytrofanov	Ukraine	multiple WUFC; ~21 bouts/~14 wins	FNG; ProFC; WBK; FFEC	T2
43	Igor Sliusarchuk	Ukraine	World WUFC Champion 2012; international HW career	ProFC; Oplot; EFN/ACA-related	T2
44	Volodymyr Shemarov	Ukraine	World WUFC Champion 2011; World Champion Free Fight	Free Fight; MMA	T2
45	Ievgenii Odnorog	Ukraine	World WUFC Champion 2011; long international career	FFEC; ECSEF; PFU; WLF	T2
46	Oleksandr Krakovskyi	Ukraine	World WUFC Champion 2017; professional career	Oplot; WWFC; FFEC/ECSEF	T2
47	Viktor Kiyko	Ukraine	World WUFC Champion Submission 2013	M-1 Ukraine; Oplot; PFU; Grappling; MMA	T2
48	Eduard Bohachuk	Ukraine	World WUFC Champion 2013; international career	MMA	T2
49	Heorhiy/Georgiy Nykyforets	Ukraine	World WUFC Champion 2013; multiple editions; long career	MMA	T2
50	Artem Savchuk	Ukraine	World WUFC Champion 2013; international HW career	MMA	T2
51	Vitaliy Kalynyuk	Ukraine—Loio Team	WUFC 2007–15; junior/senior; longitudinal documentation attributes World WUFC Ultimate Full Contact 2015 and international MMA/Submission achievements; opponent of Magomedkerimov in 2008	WUFC; MMA; Submission Grappling; K-1; Full Contact; Boxing	T2
52	Taras Sapa	Ukraine	multiple wins WUFC; finalist; career through 2025	ProFC; FFEC; Oplot; WLF; Pancrase	T2
53	Artem Tanshyn	Ukraine	multiple participations/wins WUFC; ~20 bouts	FFEC; PFU; WWFC; ProFC Ukraine	T2
54	Shota Gvasalia	Georgia→Germany	World WUFC Champion 2016; career 2012–25; 13–12, 1 NC reconstructed	GUFF; Oplot; WKG; GMC; FNC; We Love MMA	T2
55	Ludo Boulvin	Belgium	World WUFC Champion 2006/11; European Champion Shooto	ProFC; Shooto; MMA	T2
56	Stéphane Susperregui	France	WUFC Champion K-1; World WKA; World WKN; WKN GP; GLORY	GLORY; WKA; WKN; K-1	T1
57	Francis Tavares	France	WUFC Champion Full Contact 2007; World and European WAKO; WKN/WFKB	WAKO; WKN; WFKB; Full Contact; Kickboxing	T1
58	Juan del Valle	Spain	WUFC; ISKA World Champion; WKL European champion; professional boxing	ISKA; WKL; Kickboxing; Boxing	T1
59	José Luis “Titín” Zapater	Spain	WUFC/CDM 2004; international career MMA	M-1; Cage Warriors; WUFC/CDM	T2
60	Mary Romero Molina	Spain—Murcia	European WKL in Viseu; subsequent EBU European Boxing Champion	WKL; EBU; WBC; Full Contact; Kickboxing; Boxing	T1
61	Amir Albazi	Iraq→Sweden	WUFC 2009–10; UCMMA/FSC champion; Bellator/BRAVE; subsequent elite UFC	UCMMA; FSC; Bellator; BRAVE CF; UFC; BJJ; MMA	T1
62	Olle Råberg	Sweden	World WUFC Champion 2010; 2–0 pro, including decision over Timur Valiev and RNC over Peer Hasslund; BJJ/Grappling	WUFC; MMA; BJJ; Submission	T2
63	Michal “Háša” Hamršmíd	Czech Republic	World WUFC Champion 2007; multiple participations; long career; subsequent GCF	GCF; MMA	T2

ID	Athlete	Country / region	Consolidated competitive career record	Organisations / disciplines / longevity	Tier
64	Ishkhan Zakaryan	Armenia	finalist WUFC 2008; relevant European professional career	KSW; M-1; ProFC	T1
65	Razmik Ghulinyan	Armenia	WUFC Champion K-1 2017; World Champion WKU; WKL World title bout	WKU; WKL; Mix Fight; K-1	T2
66	Sergiu Ghilescu	Moldova—Loio Team	World WUFC Champion 2006; multiple participations; finalist 2008	EVT; WUFC; MMA	T2
67	Rafael Silva	Portugal—Loio Team	longitudinal documentation: 6× World WUFC Champion; MMA/Pankration/Free Fight titles; ~40–18 modern record; >20 SUB; extensive international career	WUFC; MFP; PLP; IFMA-FF; ONE FC; MMA; Pankration; Free Fight	T1
68	Luís Neves	Portugal—Loio Team	WUFC European Full Contact; WUFC World K-1; World Full Contact runner-up 2008; historical IKF record 9–2 amateur / 7–1 professional	WUFC; IKF; WKL; Full Contact; K-1; Boxing	T2
69	Celso Costa	Portugal—Loio Team	IKF Amateur Full Contact European Featherweight Champion 1998; first Portuguese IKF champion; WKL title in the historical archive	IKF; WKL; WKU; Full Contact; Kickboxing; Boxing	T2
70	Sandra Pinhel	Portugal—Loio Team	WUFC European Champion 2001; European Champion WKL; IKF European title challenger; regional/national Full Contact -65 kg champion in 1998	WUFC; WKL; IKF; Full Contact; Light Contact	T2
71	Fernando Soares	Portugal—Loio Team	WUFC/UIPDA European Champion; longitudinal documentation attributes WUFC European titles in 1998/2000; Pankration/Free Fight pioneer	WUFC; UIPDA; PLP; Pankration; Free Fight; MMA	T2
72	Hugo Augusto	Portugal—Loio Team	athlete WUFC/Pankration since 1999; referee WUFC 2013–17; activity Taekwondo Masters through 2026	WUFC; Pankration; Taekwondo; refereeing; ≥1999–2026	T3
73	Mário Monteiro	Portugal—Loio Team	IKF Professional Full Contact European Middleweight Champion -75 kg, 1999	IKF; WUFC; Full Contact; Boxing	T2
74	Valdir “Kabeza” Linhares	Brazil	World WUFC Champion Submission 2013; BJJ/Grappling/MMA	WUFC; BJJ; Submission; MMA	T2
75	André Alex Lima	Brazil	Inaugural WUFC Champion Super-Lightweight 1988; Taekwondo/BJJ	WUFC; Taekwondo; BJJ	T3
76	Marcelo “War Machine” Barreira	Brazil	WUFC 2007; >20 professional wins	MMA	T2
77	José Peres	Portugal	Inaugural WUFC Champion Flyweight 1988; European Full Contact 1994; IKF/WAKO/TKD	WUFC; IKF; WAKO; Taekwondo; Full Contact	T2
78	Jay Bimpson	England/UK	World WUFC Champion K-1 2013 -75; World Champion Golden Belt	GBMA/Golden Belt; K-1; Kickboxing	T2
79	Thiago “Bel” Silva	Brazil—Paraná	WUFC Champion 17; participant TUF Brazil 2	WUFC; TUF/UFC ecosystem; MMA	T2
80	Ubiratan “Bira/Birão” Marinho Lima	Brazil	WUFC 2009; Absolute Intercontinental Champion	Jungle Fight; Impact FC; MMA	T2
81	Oscar Nave	Portugal—Loio Team	longitudinal documentation: 3× World WUFC Ultimate Full Contact + World WUFC K-1; MMA champion in Spain; FightMatrix #26 Flyweight 2008; Russia/Germany; in 2008 defeated André Batista by decision in a title fight	WUFC; MFP; GMC; MMA; K-1	T2
82	Jaroslav “Číňan” Poborský	Czech Republic	WUFC 2008; ~80 bouts; longevity 2003–25	GCF; Oktagon; Heroes Gate; MMA	T2
83	Roman Potapov	Ukraine	WUFC Champion 2006; WFCA GP; 7–1 reconstructed	WFCA; MMA	T2
84	Mayindur Magomedov	Russia—Dagestan	WUFC 2009; gold World Combat Games 2010 Pankration -90; 5–2 MMA	FILA/UWW; M-1; ProFC; Pankration	T1

ID	Athlete	Country / region	Consolidated competitive career record	Organisations / disciplines / longevity	Tier
85	Pedro Carvalho “The Game”	Portugal	debut linked to WUFC; Bellator World Title challenger; PFL	Bellator; PFL; MMA	T1
86	Daniel “El Maldito” Alvar	Argentina	WUFC Champion 2012; Argentine, South American and Intercontinental titles	WSOF Global; MMA	T2
87	Ivan Zagubinoga	Ukraine	WUFC 2008/11; ~34 bouts reconstructed	PFU; WWFC; MMA	T2
88	Sergey Verdesch	Russia	WUFC 2008; M-1 Battle on Neva/Challenge UK	M-1; Legion	T2
89	Carl “Energy” Kinslow	England	WUFC 2008; champion UCMMA; Cage Warriors	UCMMA; CWFC	T2
90	Sergey Danish	Ukraine	WUFC 2006/08/10; Interpride/Peresvit; faced Stefan Struve	Interpride; Peresvit; MMA	T2
91	Yuri Saakyan	Armenia→Ukraine	WUFC 2008; M-1; WWFC through 2017	M-1; WWFC	T2
92	Nicholas Bertolo	France	WUFC 2008; Cage Warriors; 100% Fight	CWFC; 100% Fight	T2
93	Patrick Lebreton	France	WUFC 2000–03; KOTC 9 USA; UK; Shooto Holland	KOTC; Shooto Holland; MMA	T2
94	Usman Khanipae	Russia—Dagestan	finalist WUFC 2007; titles/international achievements Pankration	Pankration; MMA	T2
95	Gadzhi Khanipae	Russia—Dagestan	WUFC 2008/09/12; Absolute MMA World Champion; Caspian Cup; multiple tournaments	Tech-Krep; Pankration; MMA	T1
96	Oleksandr Dolishniy	Ukraine	WUFC 2012/13; ~25 bouts reconstructed	Oplot; Bukovel	T2
97	Artem Pedyma/Pedyna	Ukraine	WUFC 2011/13; 3–9; 2008–16	ECSF; PFU; WWFC	T2
98	Rizvan Zhantsaev	Russia	WUFC 2010; 4–3; ProFC President/Union Nation Cup	ProFC; Pankration; MMA	T2
99	Taras Pihynuk/Pikhunyk	Ukraine	WUFC 2009–11; 15–9; win ProFC over Magomedkerimov	ProFC; Oplot; WXC	T2
100	Viktor Boguslavskiy	Ukraine	WUFC 2008/09; 4–5; strong opposition	ProFC; FFEC	T2
101	Karen Saakyan	Azerbaijan→Russia/Armenia	WUFC 2008; 3–3; wins over Ashugyan and Levan Beraya	ZST/Bushido Armenia; Legion; Sambo; MMA	T2
102	Pavlo Kulish	Ukraine	WUFC 2009/11; 4–2	FFEC; ECSF; Oplot	T2
103	Kristian Amaiefulie	Cyprus→Ukraine	WUFC 2011; 3–2; Cyprus Open/Oplot	Oplot; ECSF	T2
104	Zalim Khotov / Залим Хотов	Russia—Kabardino-Balkaria	WUFC runner-up 2009 -70; FCF-MMA Professional World Champion 2012, New Delhi, belt + cup; coach	IF FCF-MMA; FNG; H2H; MMA	T1
105	Timur Khatefov / Тимур Хатёфов	Russia—Kabardino-Balkaria	bronze WUFC 2009 -78; 3–1 reconstructed; Absolute Professional FCF-MMA World Champion 2009	IF FCF-MMA; H2H; MMA	T1
106	Albert Aliskerov	Russia	WUFC 2009; 2–3; Fight Nights/Verdict	FNG; Verdict FC	T2
107	Mykola Hrynychuk/Grynychuk	Ukraine→Poland	WUFC 2013; 18–8 reconstructed; career IMMAF	PFU; Oplot; IMMAF	T2
108	Taras Titarenko/Tytarenko	Ukraine	WUFC 2013; 9–16 reconstructed vs 4–12 historical	PFU/Oplot ecosystem	T2
109	Mickael Kanguichiev	France	WUFC 2013; 11–8; 100% Fight title challenger; Pancrace	100% Fight; MMAGP; Pancrace	T2
110	Vladislav Kosjanenko	Ukraine	WUFC 2013; 5–3; wins Fabien/Dolishniy/Tanshyn	FFEC; PFU; Free Fight; MMA	T2
111	Yaroslav Zakharov	Russia—Moscow	WUFC 2013; 2–1 MMA; WFCA/Cyprus Open; professional kickboxing	WFCA; BARS; MMA; Kickboxing	T2
112	Bagautdin Sharaputdinov	Russia—Dagestan	WUFC 2010; 8–3; ProFC/CWFC/ACB; FightMatrix #159 MW	ProFC; Cage Warriors; ACB	T2
113	Kriss “Kross” Larcin	Belgium	WUFC 2011; 9–5	Shooto; M-1; United Glory	T2

ID	Athlete	Country / region	Consolidated competitive career record	Organisations / disciplines / longevity	Tier
114	Damien “Faster” Berteaux	Belgium	WUFC 2008; 11–9; career through 2023	Shooto; United Glory; ProFC; SHC	T2
115	Artur Avakyan	Armenia→Russia	WUFC 2008; 2–8; multilevel career; also participated in K-1 at WUFC 2008	M-1; Russian MixFight; Legion; Arashukov Cup	T2
116	Cyrille Crochet	France	WUFC 2008; 3–7 reconstructed; return in 2025	CWFC; 100% Fight; Blade Event	T2
117	Denys Liadovyi/Lyadovyi	Ukraine	WUFC 2008; ProFC; faced Adlan Amagov	ProFC; MMA	T2
118	Tija Kimoy Stanley	USA→Saint Kitts and Nevis	WUFC 2016; 3–3 confirmed; 7–3 claimed not validated	CUFF; International Cage Warriors; MMA	T2
119	Jonathan Casariego	Spain	WUFC 2016/17; 3–9; four countries	AFL; TFL; MMA	T2
120	Vladimir/Volodymyr Papusha	Ukraine	WUFC 2006; 5–6 Sherdog / 5–7 Tapology-FightMatrix	M-1; ProFC; Free Fight	T2
121	Asker Khusenovich Baragunov “Exclusive”	Russia; Nalchik/KBR; represented Krasnodar Krai	WUFC 2009; 9–4–2; six finishing wins; bronze at the 2013 Russian Combat Sambo Championship -57; coach	K-Dojo; ProFC; ACB; UMMAP; PFC Gladiator; Combat Sambo	T2
122	Vasily Yanko	Ukraine	WUFC 2013; 11–7 Tapology / 6–5 Sherdog; 13 PFU; WLF China	PFU; Oplot; WLF	T2
123	Semen Halushko/Galushko	Ukraine	WUFC 2013; 3–7 / 5–13 / 6–12 depending on database	PFU; WWFC; WLF	T2
124	Magomedrasul Abubakarovich Omarov	Russia—Nizhny Novgorod	WUFC 2013; runner-up -63.5; 3–5; Pankration/MMA since 2010; distinct from Rasul Omarov 1999	MFP; Pankration; MMA	T2
125	Sami Delbarre	France	WUFC 2005; 0–1 pro; European Amateur Shooto Champion 2005	Shooto Europe	T2
126	Vasily Sotnichenko	Ukraine	WUFC 2013; 3–2 Tapology / 0–2 Sherdog; three submissions in the broader reconstruction	PFU; MMA	T2
127	Oleg Bozhik	Ukraine	WUFC 2013; 2–4 Tapology / 2–3 Sherdog/FightMatrix	PFU; Oplot	T2
128	Rinat Mambetov	Russia	WUFC 2009; 2–1 indexed professional record / 16–3 aggregated competitive record	tournament MMA; Pankration	T2
129	Jimmi Jensen	Sweden	WUFC 2010; 0–1 pro; IMMAF World Championship runner-up 2014	IMMAF; MMA	T2
130	Islam Radzhabov	Russia—Dagestan	M-1 2003–04; WUFC 2008; 1–3 indexed; Pankration medallist	M-1; Pankration; MMA	T2
131	Marat Magomedovich Kamutaev / Марат Магомедович Камутаев	Russia—Dagestan; Lak	WUFC Champion 2009 +91; 2–0 at the event; 2× Russian Wushu champion; World Cup silver 2006, bronze 2008; 2× Russian Kung-Fu champion; World Kung-Fu champion; King of Sanda Hong Kong 2011	SC Amanat; Wushu-Sanda; Sanda; Kung-Fu; MMA; ≥2000	T1
132	Ismail Yusopov/Yusupov	Russia—Dagestan→Chechnya	finalist WUFC 2009; 1–1; probable 2× World Pankration; career record multidisciplinary	Pankration; Boxing; Kickboxing; Wushu-Sanda; H2H	T1
133	Bekhan/Bekhan Khadziev	Russia—Ingushetia/Malgobek	WUFC 2009 Ultimate FC + K-1; Cup of Legion 2003; ~27 bouts reported; Russian Pankration Champion	Legion; Boxing; Pankration; Free Fight; H2H	T2
134	Murad Bagandov	Russia—Dagestan	WUFC 2010; 0–1 MMA; Champion Moscow Open Pankration; winner H2H	Pankration; H2H	T2
135	Galbac Magomedzagidov	Russia—Dagestan/Akhvakh	World WUFC Champion 2010; Junior Pankration World Champion 2009; subsequent regional official	Pankration; MMA	T1

ID	Athlete	Country / region	Consolidated competitive career record	Organisations / disciplines / longevity	Tier
136	Shamil Aliev	Russia— Dagestan→Germany	WUFC Champion 2010 -73; 4–1; probable gold Pankration Atenas 2010 still unresolved	ECSF; We Love MMA; probable Pankration	T2
137	Shamil Guseynov/Guseinov — WUFC athlete	Russia— Dagestan/Makhachkala	World WUFC Champion K-1 2013 -66; KO Liam Simons + win Oscar Nave	K-1; Kickboxing	T2
138	Kamil Isaev	Russia— Dagestan/Makhachkala	WUFC World Championship runner-up 2013 -59; Dagestan regional team	Pankration; Free Fight; K-1 context	T2
139	Muslim Gadzhiev	Russia— Dagestan/Makhachkala	WUFC World Championship runner-up 2013 -85; 2014 call-up does not document a further participation	K-1; Kickboxing	T2
140	Surakat Terguev	Russia—Dagestan	WUFC 2008; 0–1 MMA; Dagestani national team; international Pankration medallist -95	Pankration; MMA	T2
141	Islam Nurmagomedov	Russia—Dagestan	Pancration Atrium Cup 2008 + WUFC 2010; ≥0–2 reconstructed	Pankration; MMA	T2
142	Aselder Batraev	Russia—Dagestan	World WUFC Champion Full Contact/Kickboxing 2008 -59; European Pankration; Muay Thai	Pankration; Kickboxing; Full Contact; Muay Thai	T1
143	Anzor Kardanov	Russia— Krasnodar/Anapa	WUFC 2009; 4–6 / 4–7 / 4–8 according to base	ZST Armenia; FCF-MMA; M-1; Pankration	T2
144	Nikolai/Mykola Burle	Ukraine	WUFC 2011; 2–4 reconstructed vs 1–3	Honour Warriors; West Fight; M-1 Ukraine	T2
145	Kévin Bro	France	World WUFC Champion 2014; French Elite Kickboxing Champion	FFKMDA; Kickboxing; K-1	T2
146	Kévin Bavelard	France	WUFC Champion 2014; ~11–4 striking; faced Volkan Oezdemir	K-1; Kickboxing	T2
147	Louis-Roy Bley	France	WUFC Champion 2013; France Elite; WAKO; European Champion WFMF 2019	WAKO; WFMF; K-1; Kickboxing	T1
148	Tibi Micuda	Romania→Spain	WUFC K-1 Champion 2013; finalist in another category	K-1; Kickboxing	T2
149	Chako Sargsyan	Armenia→Spain	WUFC Kickboxing Champion 2013; Spanish circuit	Kickboxing; K-1	T2
150	John Wiseby	Sweden	WUFC Junior K-1 World Champion 2013; youth Karate/Kumite/Muay Thai	Karate; K-1; Muay Thai	T2
151	Javier Fuentes “El Indómito”	Spain—Madrid	finalist WUFC Submission 2013; 10–6 MMA; M-1	M-1; Grappling; MMA	T2
152	Daniel Frigola	Spain—Catalonia	WUFC Champion 2015; neoprofessional world title; ISKA World runner-up; national titles	ISKA; Kickboxing; K-1; Boxing	T1
153	Samir El Quaiissi	Spain—Catalonia	WUFC Champion 2015; Catalan Full Contact champion; long career	Full Contact; Boxing	T2
154	Guillaume Bernard	France—Ardèche	WUFC Champion 2015; French Karate Semi-contact Champion; Coupe de France ×2; Pancrace	FFK; Karate; Full Contact; Kickboxing; Pancrace	T2
155	Vardan Mnatsakanyan	Armenia→Spain/ Valencia	WUFC Champion 2010; Valencian champion; 37 participations/33 wins/18 KOs reported; BARS/Mix Fight; MFE title bout; ISKA Armenia director	BARS; MFE; ISKA; Full Contact; K-1	T2
156	Toni Vivas	Spain—Valencia	WUFC World Championship runner-up 2003 -81; 3–4, 1 NC	EVT; CWFC; MMA	T2
157	Carlos Ruiz	Spain	World WUFC Champion 2003 -63; 3–1 professional	KO Arena; Spain Vale Tudo	T2
158	Pablo Sánchez Kyros “Tato”	Spain—Valencia	WUFC #1 -75 kg in 2003/04; 3–0 professional	WUFC/CDM; KO Arena	T2
159	Sérgio Vita	Brazil→Portugal	WUFC 2002; 2–0–1 +1 NC; silver European IBJJF Black Belt 2004	IBJJF; Carlson Gracie; Sporting; BJJ; Judo; MMA	T1

ID	Athlete	Country / region	Consolidated competitive career record	Organisations / disciplines / longevity	Tier
160	André Ferraz	Portugal—Loio Team	4–0, 1998–2001; three wins in the WUFC system; Ultimate Full Contact context	WUFC; Ultimate Full Contact; MMA	T2
161	Fernando Loio	Portugal—Viseu	TKD since 1974; national champion TKD 1977; national FC 1981; reported participation in the 4th WTF World Championships, Germany, 1979; Iberian TKD 1986; WAKO Madrid 1990; World WAKO Kickboxing Londres 1992, category/result cautiously left open; Iberian FC 1992; European FC 1997; European Pancrase 1999; world titles Ultimate FC/Pancrase/Free Fight 1999–2001; hybrid layer/MMA 4–0; founder/promoter WUFC; coach, national coach, manager, Technical Director and Worldwide Coordinator; >50 years	FPT/FPT; FPB; WTF/WT; FPFC; WAKO; WKA; WKL; WKU; IKF; UIPDA; PLP; UWW; WBC; IBA; WBL; WUFC; Taekwondo; Full Contact; Kickboxing; Boxing; Muay Thai; Pankration; Free Fight; MMA; Submission Grappling	T2
162	Ricky Elie	France/Western Europe — nationality unresolved	2–0; UKMMAC + WUFC Portugal	UKMMAC; MMA	T2
163	Marcelo Bernardo	Brazil→Portugal	WUFC 2002; extensive BJJ; European IBJJF + multiple black-belt podiums	IBJJF; Brazilian Power Team; BJJ; Submission; MMA	T1
164	Martin “Hooligan” Lavin	Sweden	WUFC 2009/10; 2–3; win over Galbac; Submission Wrestling	The Zone; Fighter Gala; MMA; Submission	T2
165	Bohdan Holovaty/Holovaty	Ukraine	WUFC Champion 2013; IMMAF World Championship runner-up 2014; international professional career	Oplot; PFU; M-1; IMMAF	T1
166	Edi Vicente	Portugal—Loio Team	WUFC champion; Boxing + K-1 career; MMA 0–2 kept separate	WUFC; Boxing; K-1; MMA	T2
167	Martin Gabriel “Gladiator” Rodriguez	Argentina—Santa Cruz	WUFC Champion 2012 -55; Argentina/Spain; 3–2 convergent	Odisea; Hombres de Honor; Fighting Victory	T2
168	Igor Zharkov	Russia	WUFC 2006 semi-final; 2–1 reconstructed, including Russia vs Iran 2003	PSC Challenge Cup; Free Fight; MMA	T2
169	Franck Rizzo	Monaco	finalist World WUFC 2006; 2–2; external win in France	Fight First; Furious FC	T2
170	Djamel Moula	France	WUFC 2006; 1–3–1; win Shooto Belgium; activity through 2012	Shooto; Ultimate Force; Mix-Fight; AFC	T2
171	Michaylo/Mykhaylo Tomyshynets	Russia/former USSR—Loio Team	European WUFC Champion Full Contact 2003; challenger for the WKL Professional World title in 2005 vs El Idrissi	WKL; Full Contact; Kickboxing	T2
172	Danny Price — St Helens	England—Merseyside	World Champion Junior WUFC 2009 -74; prestige bout UK 2008	IKF/Golden Belt ecosystem; Full Contact; Kickboxing	T2
173	Robbie Horton	England—St Helens	World WUFC Champion 2009 -66; career Full Contact since 2002	IKF Europe; St Helens Martial Arts	T2
174	Ezequiel González — Hook School	Argentina→Spain/Catalonia	World WUFC Champion 2015 -88; earlier Kickboxing win in Terrassa	Hook School; Kickboxing; Full Contact	T2
175	Mohamed Yaman Nakdali Naddaf	Syria→Spain—Valencia	WUFC World Champion 2003 -93; 1–0 indexed MMA record, three bouts reported; Spanish national Wrestling/Grappling team; national titles; ≥2017	Alianza/Training Unit; Wrestling; Grappling; MMA	T2
176	Anaís/Anaïs Bernardo	France—Bourgogne/Montbard; represented Portugal	WUFC draw 2014 -65; World WUFC Champion 2015 -68; gold Coupe de France Karate Light Contact 2017 +68	Boxing Club Montbardois; Full Contact; Low Kick; Karate	T2
177	Alim Cherkessov	Russia—Dagestan	WUFC 2014; confirmed among the five Dagestani athletes; 14–1 Sherdog / 16–2 FightMatrix	ACB; Chinese Wushu Fight League; MMA	T2

ID	Athlete	Country / region	Consolidated competitive career record	Organisations / disciplines / longevity	Tier
178	Edgar Rudikovich Kolyan / Эдгар Рудикович Колян	Armenia— Artashat→Russia— Ivanovo	WUFC 2006; 0–2 indexed MMA record; Kudo World Championships 2005/09; European Championship 2008; World Cups 2011/17; World Championship silver 2014; bronze 2018; Pankration, Combat Sambo, Army H2H	Kudo Federation Russia; SK Lider; Kudo; Pankration; Combat Sambo; Army H2H; MMA	T1
179	Joaquim Peixoto	Portugal	foundational WUFC 1988 participant according to the historical archive; athlete World WTF Manila 1995 -70; national coach/head coach; Pedro Póvoa Olympic qualification/Beijing 2008; Rui Bragança/Júlio Ferreira; cycle Paris 2024+	FPT; WTF/WT; Portuguese national team; Taekwondo/Kyorugi	T2
180	André Batista	Portugal—Loio Team	WUFC Full Contact Champion; convergent professional MMA record 4–2; loss to Amir Albazi at WUFC 15, 22/08/2009. Federation/longitudinal archive: several National Championships; Full Contact victories/titles in France and Spain; Submission Grappling champion in Belgium; international career in the UK. In 2009, Newark, England, faced Regis Sugden for the GBMA/EFK European title	WUFC; FCF; GBMA/EFK; Loio Team; MMA; Full Contact; Kickboxing; Submission Grappling; Portugal/Spain/France/Belgium/England; ≥2008–09	T2
181	Augusto Gomes	Portugal—Loio Team	Participant and winner in WUFC events according to federation archives; multiple-time National Champion; Full Contact win over Mário Vicente in 1998; entered the 1999 IKF European Championship with a historical published record of 13–2; challenger to Eval “Evil” Denton for the IKF Professional Full Contact European Super-Welterweight Championship, St Helens, 10 rounds; Portuguese Boxing Federation archive: 4 Olympic-style boxing bouts in 1998, 4 wins	WUFC; IKF; FPBoxing/Portuguese Boxing Federation; Full Contact; Kickboxing; Olympic-style Boxing; Portugal/UK; ≥1998–99	T2
182	Ibrahim Barakat	Germany — Cologne (Köln)	WUFC participant in 2003 representing Germany; contested a professional WKU Full Contact -58 kg bout against Celso Costa. Later German documentation identifies Ibrahim Barakat in Cologne, associated with Asia Falken/Cologne Fight Academy, with a long career in kickboxing and Muay Thai; a later gym source reports more than 150 bouts across kickboxing, Muay Thai and MMA and technical work with athletes from international organisations.	WUFC; WKU; Asia Falken Köln; Cologne Fight Academy; Kickboxing; Muay Thai; MMA; Germany; ≥2001–2022	T2

Note. Table 2 presents the 182 athletes from the international WUFC corpus held in Portugal whose contemporary, subsequent, or continuing careers met the criteria defined in this study for a qualifying international career (T1–T3). The table is not an enumeration of all WUFC participants or champions, but the subset of athletes with significant and documentarily verified international competitive careers and achievements. Inclusion required documented participation in the analysed WUFC corpus—comprising the 30 World Championship editions held in Viseu, Lamego, and Peso da Régua and eight additional international events held in São Pedro do Sul (2001 and two events in 2004), Vialonga (2002), Ponte da Barca (2003), Vizela (2004), Tábua (2006), and Castanheira de Pera (2008)—and sufficient evidence of qualifying international competitive achievement, in accordance with the operational and verification criteria defined in the Methods.

Careers were identified, reconstructed, and verified through the documentary corpus described in Section 2.7, including WUFC archives, official federation and organisational sources, specialised databases, event archives, and contemporary national and international press, including Russian/CIS sources where relevant. Sources were used complementarily for identification, disambiguation, chronological reconstruction, and career verification; consequently, there is not necessarily a one-reference-per-athlete correspondence. No nationality quotas were applied, so the observed geographical distribution results from the athletes who met the defined criteria rather than from a country-based sampling strategy.

Classification and documentary transparency. Each athlete is counted once only at the final analytical level T1, T2, or T3, according to the criteria defined in Section 2.8, resulting in the consolidated distribution T1/T2/T3 = 28/152/2. Adjudication statuses, documentary qualifiers, and internal evidence codes used during the athlete-level audit are not analytical variables of the study and were therefore removed from the publication table; they remain preserved in the supplementary archival version for consultation and traceability on OSF. T1 = Global Elite; T2 = International/Continental Elite; T3 = Significant International/Institutional Pathway.

Abbreviations. WUFC = World Ultimate Full Contact; UFC = Ultimate Fighting Championship; PFL = Professional Fighters League; WSOF = World Series of Fighting; ACA = Absolute Championship Akhmat; ACB = Absolute Championship Berkut; WFCA = World Fighting Championship Akhmat; M-1 = M-1 Global; ProFC = Professional Fighting Championships; FNG = Fight Nights Global; RCC = Russian Cagefighting Championship; BRAVE CF = BRAVE Combat Federation; KSW = Konfrontacja Sztuk Walki; GMC = German MMA Championship; FNC = Fight Nation Championship; EMC = Elite MMA Championship; UCMMA = Ultimate Challenge MMA; FSC = FightStar Championship; EVT = European Vale Tudo; GCF = Gladiator Championship Fighting; ATT = American Top Team; WAKO = World Association of Kickboxing Organizations; WKA = World Kickboxing Association; WKN = World Kickboxing Network; WKU = World Kickboxing Union; WKL = World Kickboxing League; IKF = International Kickboxing Federation; ISKA = International Sport Karate Association; PLP = Professional League of Pankration; IFMA-FF = International Federation of Martial Arts – Free Fight; GBMA = Golden Belt Martial Arts; WFKB = World Federation of Kickboxing; EBU = European Boxing Union; FIAS = Fédération Internationale de Sambo; UIPDA = Union Internationale de Pancrace et Disciplines Assimilées, historical designation preserved in accordance with WUFC/UIPDA records; BJJ = Brazilian Jiu-Jitsu; H2H/Army H2H = Hand-to-Hand/Army Hand-to-Hand. Separation between disciplines. MMA, Pankration, Free Fight, Combat Sambo, H2H/Army H2H, Kickboxing, K-1, Full Contact, Sanda/Wushu-Sanda, Muay Thai, Boxing, BJJ, Submission Grappling, Kudo, and Taekwondo are treated as distinct competitive contexts. Results obtained in different disciplines are not arithmetically aggregated as if they constituted a single competitive record.

3.4 Consolidated Statistical Analysis of Subsequent International Career Development

The expanded audit makes it possible to relate individual trajectories to the protected historical universe. Table 2 identifies and documents 182 qualifying international careers; Table 3 summarises, by analytical origin, UA, Competitive Depth, Elite Density with Wilson 95% CIs, T1–T3 tiers, and EAI.

This distinction is essential because competitive participation, competitive success at WUFC and subsequent career development represent different analytical constructs.

Historical event-level win rates remain conceptually distinct from the longitudinal analysis: the former use historical delegation and documented competitive participation, whereas career analysis uses unique athletes and biographically adjudicated analytical origin.

The present career analysis instead asks:

How many distinct athletes subsequently demonstrated a qualifying international career?

Accordingly, Table 3 is based primarily on unique athletes rather than participations and introduces three complementary career-development indicators:

Competitive Depth (CD) — absolute number of athletes meeting the qualifying international career criteria.

Elite Density (ED) — proportion of unique athletes meeting the qualifying international career criteria.

Elite Achievement Intensity (EAI) — weighted indicator reflecting the verified level reached by athletes with qualifying international careers.

These measures should be interpreted together rather than as a single ranking system.

3.4.1 Competitive Depth

Competitive Depth represents the absolute number of distinct athletes from a population who satisfied the predefined criteria for qualifying subsequent or continuing international careers.

For population i :

$$CD_i = R_i$$

where:

R_i = number of athletes meeting the qualifying international career criteria in population i

Competitive Depth therefore measures the absolute number of qualifying international careers observed within the population, without adjusting for the size of the underlying athlete population.

The Russian cohort presented the greatest Competitive Depth:

$$CD_{\text{Russia}} = 70$$

This is a central finding because it demonstrates that the Russian pattern is not dependent on one or two exceptional internationally famous competitors. Rather, a substantial number of distinct athletes from the Russian WUFC population subsequently met the career-relevance criteria.

Competitive Depth should nevertheless not be interpreted independently of population size. A larger athlete population has more opportunities to contain athletes with qualifying international careers than a smaller population. Elite Density is therefore required as the complementary proportional measure.

3.4.2 Elite Density

Overall Elite Density was calculated relative to the protected historical denominator of 554 unique athletes:

$$ED_{\text{overall}} = (182 / 554) \times 100 = 32.9\%$$

This indicator estimates the proportion of the reconstructed historical universe that meets the T1–T3 qualifying international career criteria.

In the present version, complete nominal review enabled the analytical origin of all 554 identities to be reconciled; ED is therefore also presented by national origin, always with the corresponding UA and 95% Wilson CI.

Accordingly, comparisons across origins jointly use UA, Competitive Depth, Elite Density, 95% Wilson CI, T1–T3 distribution, and EAI, without converting any single indicator into a ranking.

3.4.3 Wilson 95% Confidence Intervals for Elite Density

Applying the Wilson procedure to the overall proportion 182/554 yielded a 95% CI of 29.1–36.9%.

The interval represents the statistical uncertainty associated with overall ED and does not constitute a ranking criterion.

Wilson 95% CIs are reported for the reconstructed national ED values, and their width should be interpreted in relation to the size of each UA denominator.

3.4.4 Elite Achievement Intensity

The overall distribution was T1/T2/T3 = 28/152/2.

Consequently:

$$\text{EAI}_{\text{overall}} = [3(28) + 2(152) + 2] / 182 = 2.14$$

EAI complements Competitive Depth by distinguishing the magnitude of subsequent achievement. Each athlete contributes once only to the final analytical tier used in the calculation.

3.4.5 Dagestan / North Caucasus Subgroup

The final synthesis identified 57 unique athletes with positively documented origins in Dagestan/North Caucasus within the 84-athlete Russian denominator. Of these, 52 met the qualifying international career criteria.

Thus:

$$\text{ED}_{\text{NC}} = (52 / 57) \times 100 = 91.2\% \text{ (95\% Wilson CI 81.1–96.2); NC Share}_{\text{CD}} = (52 / 70) \times 100 = 74.3\%$$

The first percentage represents regional Elite Density within the closed regional denominator; the second represents the subgroup's contribution to Russian Competitive Depth.

Regional origin was not inferred from names or presumed ethnicity; positive documentary/biographical evidence was required, and the eight previously pending documentary cases were adjudicated by the author according to explicitly recorded regions. The subgroup was not independently added to overall totals.

Comparison with historical competitive-performance indicators should remain conceptually separate because event win rate and longitudinal career development measure different phenomena.

3.4.6 Why Elite Density Alone Should Not Rank Countries

A country represented by very few athletes may display a numerically high Elite Density because one qualifying international career constitutes a large fraction of its denominator.

For example:

$$1 / 1 = 100\%$$

$$1 / 2 = 50\%$$

$$2 / 3 = 66.7\%$$

These percentages can numerically exceed those of much larger populations despite corresponding to only one or two athletes with qualifying international careers.

Consequently, raw Elite Density must be interpreted together with:

N = unique-athlete population size

CD = Competitive Depth

ED = Elite Density

95% CI = precision of ED

T1 / T2 / T3 = career-level distribution

EAI = Elite Achievement Intensity

The study therefore does not construct a single national ranking from Elite Density alone.

A population may display high absolute career depth, high proportional density or high achievement intensity. These dimensions are complementary rather than interchangeable.

3.4.7 Host-Nation Effect and Portugal

Portugal requires particular interpretive caution because it was the host country throughout WUFC history.

In the final longitudinal cohort, Portugal had CD=16, corresponding to 8.8% of the 182 qualifying careers.

The Portuguese distribution was T1/T2/T3 = 2/13/1, with EAI = 2.06.

The reconstructed Portuguese denominator is UA=202; with CD=16, Portuguese ED is 7.9% (95% CI 4.9–12.5%). This value is interpreted within the specific host-country context and the broader access to the WUFC corpus.

The host-nation effect remains methodologically relevant: greater geographical proximity, lower travel costs, continuity across editions, and a broader domestic selection base may alter the composition of the participating population relative to visiting delegations.

For this reason, differences in Competitive Depth and EAI should be interpreted in the context of participation opportunities and selection processes, without causal inference.

3.4.8 Analytical Treatment of Iraq and Sweden

Historical event delegation and analytical athlete origin were retained as distinct variables.

Amir Albazi was historically recorded under Sweden in WUFC results; in the career-origin analysis, the biographical classification is treated separately and assigned to Iraq.

In the final qualifying cohort, Iraq contributes one T1 career (0.5% of the cohort; EAI = 3.00).

In the reconstructed corpus, Iraq has UA=2 and CD=1, corresponding to ED=50.0% (95% CI 9.5–90.5%). This value illustrates precisely why ED must be interpreted with the denominator and confidence interval: a proportion based on a very small denominator is not, by itself, comparable with the depth observed in substantially larger populations.

Historical fight-participations and victories remain assigned to the delegation recorded at the event where applicable, preserving the integrity of the competitive archive.

3.4.9 Foundational-Period Historical Athletes

Reconstruction and adjudication of the foundational period enabled documentarily confirmed participants to be incorporated into the protected historical denominator.

The consolidated Table 2 contains 182 athletes, and all 182 are included in the longitudinal numerator used in the overall calculation.

Among the preserved foundational cases are André Alex Lima, José Peres, Fernando Casimiro Loio Pinto, and Joaquim Peixoto, with their respective adjudicated analytical tiers and historical information retained in Table 2.

Thus:

Table 2 athletes = 182

Athletes with qualifying international careers = 182

There is no additional block outside the denominator in the current statistical closure.

3.4.10 Overall Elite Density

The principal statistical population contained:

N_{total} = 554 unique athletes

and:

R_{total} = 182 athletes with qualifying international careers

Therefore:

ED_{overall} = $(182 / 554) \times 100 = 32.9\%$

with:

95% CI = 29.1–36.9%

The Dagestan/North Caucasus row was not added independently to the overall totals because it is nested within Russia.

3.4.11 Integrated Interpretation of Table 3

Table 3 should not be interpreted as a conventional medal table or as a simple country ranking.

Russia had UA=84, CD=70, and ED=83.3% (95% CI 73.9–89.8), with T1/T2/T3 = 14/56/0 and EAI=2.20. Ukraine had UA=43, CD=32, and ED=74.4% (95% CI 59.8–85.1), 1/31/0 and EAI=2.03; Portugal UA=202, CD=16, and ED=7.9% (95% CI 4.9–12.5), 2/13/1 and EAI=2.06; France UA=54, CD=14, and ED=25.9% (95% CI 16.1–38.9), 3/11/0 and EAI=2.21; Spain UA=35, CD=10, and ED=28.6% (95% CI 16.3–45.1),

3/7/0 and EAI=2.30. These values refer exclusively to the reconstructed WUFC populations and not to national populations of combat-sport practitioners.

Within the closed regional denominator, 52/57 athletes (91.2%; 95% CI 81.1–96.2) met the T1–T3 criteria; these 52 cases represent 74.3% (52/70) of Russian CD.

Overall ED was 32.9% (182/554; 95% CI 29.1–36.9%), with overall T1/T2/T3 = 28/152/2 and EAI=2.14.

Differences between origins should be interpreted descriptively, taking into account competitive selection processes, documentary heterogeneity, the size of reconstructed national denominators, and the width of the corresponding confidence intervals.

Table 3. Unique Athletes, Competitive Depth, Elite Density, and Elite Achievement Intensity by Analytical Origin

Country / analytical origin	UA ¹	Competitive Depth (CD)	% of 182 careers	Elite Density / 95% CI ²	T1 / T2 / T3	EAI	Note
Russia	84	70	38.5%	83.3% (95% CI 73.9%–89.8%)	14 / 56 / 0	2.20	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
↳ Dagestan / North Caucasus³	57	52	74.3% of Russian CD	91.2% (95% CI 81.1%–96.2%)	14 / 38 / 0	2.27	Documentarily verified regional subgroup nested within Russia; not added to national/overall totals.
Ukraine	43	32	17.6%	74.4% (95% CI 59.8%–85.1%)	1 / 31 / 0	2.03	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Portugal	202	16	8.8%	7.9% (95% CI 4.9%–12.5%)	2 / 13 / 1	2.06	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
France	54	14	7.7%	25.9% (95% CI 16.1%–38.9%)	3 / 11 / 0	2.21	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Brazil	41	7	3.8%	17.1% (95% CI 8.5%–31.3%)	2 / 4 / 1	2.14	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Spain	35	10	5.5%	28.6% (95% CI 16.3%–45.1%)	3 / 7 / 0	2.30	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
United Kingdom	21	4	2.2%	19.0% (95% CI 7.7%–40.0%)	0 / 4 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Sweden	11	4	2.2%	36.4% (95% CI 15.2%–64.6%)	0 / 4 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Armenia	7	7	3.8%	100.0% (95% CI 64.6%–100.0%)	2 / 5 / 0	2.29	Seven athletes of Armenian analytical origin in the denominator; Yuri Saakyan is counted under Armenia (Armenia→Ukraine trajectory).
Belgium	6	3	1.6%	50.0% (95% CI 18.8%–81.2%)	0 / 3 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
USA	3	0	0.0%	0.0% (95% CI 0.0%–56.1%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator after identity consolidation; interpret UA separately from the career numerator.
Argentina	3	3	1.6%	100.0% (95% CI 43.9%–100.0%)	0 / 3 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Angola	3	0	0.0%	0.0% (95% CI 0.0%–56.1%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Italy	3	0	0.0%	0.0% (95% CI 0.0%–56.1%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Iraq	2	1	0.5%	50.0% (95% CI 9.5%–90.5%)	1 / 0 / 0	3.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Czech Republic	2	2	1.1%	100.0% (95% CI 34.2%–100.0%)	0 / 2 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Moldova	2	1	0.5%	50.0% (95% CI 9.5%–90.5%)	0 / 1 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.

Country / analytical origin	UA ¹	Competitive Depth (CD)	% of 182 careers	Elite Density / 95% CI ²	T1 / T2 / T3	EAI	Note
Azerbaijan	2	1	0.5%	50.0% (95% CI 9.5%–90.5%)	0 / 1 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Monaco	2	1	0.5%	50.0% (95% CI 9.5%–90.5%)	0 / 1 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Syria	2	1	0.5%	50.0% (95% CI 9.5%–90.5%)	0 / 1 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
São Tomé and Príncipe	2	0	0.0%	0.0% (95% CI 0.0%–65.8%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Germany	2	1	0.5%	50.0% (95% CI 9.5%–90.5%)	0 / 1 / 0	2.00	Ibrahim Barakat is included in the longitudinal numerator as T2; UA remains 2 because the athlete was already part of the reconstructed historical universe.
India	2	0	0.0%	0.0% (95% CI 0.0%–65.8%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Canada	2	0	0.0%	0.0% (95% CI 0.0%–65.8%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Georgia	1	1	0.5%	100.0% (95% CI 20.7%–100.0%)	0 / 1 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Cyprus	1	1	0.5%	100.0% (95% CI 20.7%–100.0%)	0 / 1 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Saint Kitts and Nevis	1	1	0.5%	100.0% (95% CI 20.7%–100.0%)	0 / 1 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Romania	1	1	0.5%	100.0% (95% CI 20.7%–100.0%)	0 / 1 / 0	2.00	Nominal analytical origin; interpret ED jointly with UA, 95% CI, CD, and EAI.
Pakistan	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Senegal	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Switzerland	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Iran	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Egypt	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Macau	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Netherlands	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Venezuela	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Cape Verde	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Finland	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Austria	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Denmark	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Morocco	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
Bulgaria	1	0	0.0%	0.0% (95% CI 0.0%–79.3%)	0 / 0 / 0	—	No T1–T3 career in the longitudinal numerator.
TOTAL	554	182	100.0%	32.9% (95% CI 29.1%–36.9%)	28 / 152 / 2	2.14	Closed nominal universe; the Dagestan/North Caucasus subgroup is nested within Russia.

Note. UA = unique athletes in the protected historical denominator; CD = Competitive Depth, corresponding to the number of athletes meeting the qualifying international career criteria; ED = Elite Density, calculated as $ED = (CD/UA) \times 100$; 95% CI = 95% confidence interval for ED, calculated using the Wilson method;

Loio, F. (2026). Longitudinal elite-career development in WUFC athletes in Portugal (1988–2026): Evidence of a high-level international competitive field, elite density, competitive depth, and multidisciplinary transfer. OSF. <https://doi.org/10.17605/OSF.IO/Y69AF>

T1–T3 = highest analytically adjudicated qualifying international career tier for each athlete; EAI = Elite Achievement Intensity, calculated as $EAI = [3(T1) + 2(T2) + T3]/CD$. The % of 182 careers column represents the contribution of each analytical origin to the consolidated set of 182 qualifying international careers; because Dagestan/North Caucasus is a subgroup of Russia, the percentage shown (74.3%) specifically represents 52/70 of Russian CD and is not an additional contribution to the overall total.

The 42 analytical-origin categories do not necessarily correspond to the total number of historically represented national or territorial delegations, as some historical representations were aggregated for analytical purposes (e.g., England, Scotland, and Ireland within the United Kingdom analytical category).

¹ The overall UA=554 denominator is historically protected. Following complete nominal review, an analytical origin was adjudicated for all 554 identities. Historical delegation and transnational career information remain preserved in Table 2; for origin-based calculations, each athlete contributes only once to the adjudicated analytical origin. Analytical origin does not replace or rewrite the historical delegation under which the athlete participated in the event.

² The 95% CIs reported for ED were calculated using the Wilson method and should be interpreted jointly with the size of the corresponding UA denominator, particularly for origins represented by small numbers of athletes.

³ Dagestan/North Caucasus is a documentarily verified regional subgroup nested within Russia and is not added separately to national or overall totals. Nominal cross-checking of the 84 athletes of Russian analytical origin identified UA=57 for this subgroup, of whom CD=52 had qualifying international careers: ED=91.2% (95% CI 81.1%–96.2%). These 52 athletes represent 74.3% (52/70) of Russian Competitive Depth. The TOTAL row presents the consolidated universe after identity resolution and individual-level origin adjudication and does not include the regional subgroup a second time.

3.5 Descriptive Synthesis of Competitive Level

Taken together, the final indicators support describing the WUFC field observed in Portugal as a high-level international competitive environment. This synthesis is based on 182 qualifying international careers among 554 unique athletes (overall ED 32.9%; 95% CI 29.1–36.9), a tier distribution of 28/152/2 (T1/T2/T3), overall EAI of 2.14, and repeated progression to world, continental, and professional competition across multiple disciplines. The interpretation remains descriptive and non-causal.

4. Discussion

The present study combines historical competition records, longitudinal athlete follow-up, and documentary career verification to examine career development in the international WUFC environment. The expanded archival reconstruction increased the nominal population of qualifying international careers to 182 athletes and consolidated a protected historical denominator of 554 unique athletes.

The protected historical population comprises 554 unique athletes, 466 effectively counted bouts, 932 fight-participations, and 457 attributable victories. The longitudinal analysis includes 182 qualifying international careers, all incorporated into the global numerator.

The findings support four principal interpretations. First, subsequent qualifying international careers occurred in a substantial proportion of the reconstructed athlete population, but were distributed unevenly across national and regional groups. Second, Russia combined high competitive performance with the greatest absolute Competitive Depth and a high Elite Density. Third, a pronounced concentration of the Russian relevant-career population was observed among athletes positively verified as originating from Dagestan or the wider North Caucasus. Fourth, the subsequent career pathways were markedly multidisciplinary, extending beyond MMA to pankration, kickboxing, boxing, full contact, grappling, taekwondo and other combat-sports contexts.

These findings broaden the interpretation of WUFC from a historical competition dataset to a longitudinal environment in which competitive performance, athlete development and subsequent international career trajectories can be examined together.

4.1 Competitive Success and Subsequent Career Development Are Related but Distinct Outcomes

An important contribution of the analysis is the separation between competitive performance at WUFC and subsequent career development.

The historical win rate measures what occurred during WUFC competition:

Win Rate = Wins / Fight-participations

Elite Density answers a different question:

Elite Density = Athletes with Qualifying International Careers / Unique Athletes

This distinction prevents a high competition win rate from being automatically interpreted as evidence of superior subsequent career development.

In the current closure, comparison between historical event performance and longitudinal career development is kept conceptually separate.

The longitudinal analysis identified 70 qualifying international careers of Russian origin, corresponding to 38.5% of the 182-athlete cohort.

The Russian distribution was T1/T2/T3 = 14/56/0, with EAI = 2.20.

Previously published national FP, W, and WR values are not reused as if they were automatically equivalent to the historical universe now reconstructed. The current longitudinal synthesis uses reconciled denominators by analytical origin and jointly interprets UA, CD, ED, 95% CI, T1–T3 distribution, and EAI.

This approach avoids combining denominators derived from different phases of archival reconstruction.

The observed concentration remains descriptive and non-causal.

4.2 Russia and the Concentration of Qualifying International Careers

The Russian results are particularly notable for the scale of Competitive Depth: 70 qualifying careers, representing 38.5% of the total cohort.

The T1/T2/T3 distribution of 14/56/0 and EAI = 2.20 show that the concentration does not depend only on isolated T1 cases.

Interpretation should consider prior athlete selection, domestic competitive structures, training systems, socioeconomic factors, regional sporting cultures, previous technical experience, and subsequent professional opportunities.

Accordingly, the findings are compatible with an interpretation of a dense competitive ecosystem, but do not permit causality to be attributed to any single variable.

4.3 Dagestan and the Wider North Caucasus

Regional reconstruction revealed a marked concentration within the Russian cohort: 57 of the 84 Russian athletes had positively documented origins in Dagestan/North Caucasus, and 52 of those 57 met the qualifying international career criteria, corresponding to regional ED = 91.2% (95% CI 81.1–96.2). The 52 cases represent 74.3% of the 70 qualifying Russian careers.

Regional ED and contribution to Russian CD are distinct indicators: 91.2% describes the proportion of qualifying careers within the regional denominator UA=57; 74.3% describes the subgroup's share of the 70 qualifying Russian careers.

The finding complements the historical evidence of strong regional competitive presence at WUFC, but the two dimensions—event performance and longitudinal trajectory—remain analytically distinct.

The concentration can be interpreted in relation to environments characterised by repeated opponent interaction, high competitive exposure, and accumulation of perception–action experience, factors relevant to adaptability and technical-tactical versatility (Araújo et al., 2006; Loio, 2021; Hristovski et al., 2006; Renshaw et al., 2019).

The archival design does not directly measure developmental mechanisms and does not demonstrate that regional culture caused the observed trajectories.

4.4 Ukraine and the Importance of International Selection

Ukraine showed the second-greatest Competitive Depth: 32 qualifying international careers (17.6% of the cohort), with T1/T2/T3 = 1/31/0 and EAI = 2.03.

The Ukrainian cohort shows that the concentration of subsequent relevant careers was not exclusively Russian.

Interpretation should consider the selection structure of international participation: participating athletes constituted a competitively selected population rather than a representative sample of the country's general practitioner population.

This principle applies throughout: the study denominators and numerators describe the reconstructed WUFC population, not general national combat-sport populations.

Elite Density_WUFC population $\neq$ Elite Density_national combat-sport population

This distinction applies to all visiting delegations.

4.5 Portugal and the Host-Nation Effect

Portugal presents a specific structural situation as the host country.

In the final longitudinal cohort, Portugal contributed 16 qualifying international careers (8.8% of the 182), with T1/T2/T3 = 2/13/1 and EAI = 2.06.

Portugal has UA=202, CD=16, and ED=7.9% (95% CI 4.9–12.5%), with T1/T2/T3 = 2/13/1 and EAI = 2.06.

Direct comparison between national percentages requires caution: ED should be read jointly with UA, CD, 95% CI, T1–T3 distribution, EAI, and the structural differences in access and selection between the host country and visiting delegations.

For this reason, the comparison jointly uses Competitive Depth, Elite Density, Wilson 95% CI, T1–T3 distribution, and EAI. National ED is interpreted only within the reconstructed WUFC population and always in relation to the size of the corresponding denominator.

As the host country, Portugal had lower logistical barriers to participation, greater continuity across editions, and access to a broader domestic athlete population. In contrast, visiting international teams could be composed more selectively.

The Portuguese denominator may therefore include a broader spectrum of competitive ability and career ambition.

The host-nation effect is not a statistical error to be removed; it is a structural feature of the historical dataset that must be incorporated into interpretation.

This also explains why Competitive Depth, Elite Density, and EAI were retained as separate indicators rather than collapsed into a single ranking.

4.6 Elite Density as a Descriptive Indicator, Not a National Ranking

The analysis introduces Elite Density to describe the concentration of qualifying international careers within the observed populations. Its usefulness depends on careful interpretation.

For example, Georgia may produce a nominal value of 100% from:

1 athlete with a qualifying international career / 1 unique athlete

whereas populations with similarly small denominators may show, for example:

$1 / 2 = 50.0\%$

These percentages have very different evidential precision from:

$70 / 84 = 83.3\%$

for the Russian population observed in the WUFC corpus.

This is reflected in the Wilson confidence intervals.

Elite Density is therefore most informative when interpreted together with:

population size (N)

Competitive Depth (CD)

Wilson 95% CI

career-tier distribution

and:

Elite Achievement Intensity (EAI)

The study deliberately avoids constructing a composite league table from these variables because any weighting system would introduce additional assumptions that are not empirically validated.

The multidimensional profile is itself more informative than a single ranking score.

4.7 Multidisciplinary Career Development

The expanded Table 2 considerably strengthens one of the central conceptual findings of the study: qualifying subsequent international careers were multidisciplinary.

The 182 athletes in Table 2 include trajectories extending across MMA, pankration, professional boxing, kickboxing, K-1, full contact, grappling, submission competition, taekwondo, and associated coaching or institutional pathways.

This matters theoretically because the observed development cannot be reduced to a simple:

WUFC → MMA

sequence.

A more accurate representation is:

diverse prior combat foundations

→ hybrid international competitive exposure

→ continued adaptation and specialisation

→ multiple subsequent combat-sports pathways

The direction of causality cannot be established. Some athletes may already have possessed highly developed multidisciplinary capabilities before WUFC participation. Others may have developed them subsequently through different competitive systems.

What the longitudinal evidence demonstrates is that the WUFC population contained an unusually useful historical sample for studying cross-context combat-sports careers.

4.7.1 Concentration of International Competitive Excellence

An additional inference from the consolidated career evidence is the notable concentration of athletes who subsequently or concurrently reached international levels across multiple combat-sport systems. In the

updated dataset, 182 of 554 unique athletes met the T1–T3 criteria (32.9%; 95% CI 29.1–36.9), with T2 predominating (152), followed by T1 (28) and T3 (2).

Scientifically, this supports a conclusion of substantial competitive excellence within the WUFC international athlete population observed in Portugal, especially among several visiting delegations. The claim must remain population-bounded: the study does not demonstrate that all WUFC participants were elite, nor that participation in WUFC caused later excellence. Rather, the historical events repeatedly contained athletes whose careers extended to world, continental and major professional levels in MMA, Pankration, Combat Sambo, Sanda, Kickboxing, Full Contact, boxing, grappling and related systems.

The Russian/North Caucasus and Ukrainian evidence is particularly relevant to interpretation of the observed international competitive field. Each case was adjudicated according to the same inclusion rule, identity standard, and T1–T3 definitions before calculation of CD, ED, Wilson intervals, and EAI, preserving the internal comparability of the analytical design.

4.8 Adaptive Transfer and the FLCPF

The multidisciplinary findings are particularly relevant to the Fernando Loio Combat Performance Framework (FLCPF). (Loio, 2026a; Loio et al., 2022a).

Adaptive transfer refers to the capacity to maintain functional performance when competitive constraints change. In combat sports, those constraints may include permitted techniques, scoring systems, competitive distance, bout duration, equipment, tactical priorities and opponent characteristics.

The career trajectories documented in Table 2 provide observational examples of athletes remaining competitively functional across such changes.

The evidence is compatible with the following conceptual sequence:

diverse technical foundations

→ representative opponent interaction

→ perception-action calibration

→ contextual technical adaptation

→ transfer across competitive environments

However, the career audit does not directly measure the cognitive or motor mechanisms underlying this sequence.

Accordingly, the present results should be described as consistent with the FLCPF, rather than as validation or proof of the framework.

The FLCPF provides an interpretative structure through which the longitudinal findings can be organised; the archival data provide historical observations compatible with several of its proposed dimensions.

4.9 Technical Automaticity, Anticipation and Representative Interaction

Previous observational WUFC evidence and the FLCPF provide a theoretical basis for considering the relationship between technical automaticity, anticipation and representative opponent interaction in interpreting the longitudinal findings. (Ericsson et al., 1993; Hristovski et al., 2006; Loio et al., 2020b, 2022b; Milazzo et al., 2016).

A useful conceptual distinction is between simple reaction and anticipatory control: highly practised technical actions may remain functionally adaptable when athletes learn to recognise or create the competitive situations in which those actions are appropriate.

Conceptually:

perception of opponent information

→ anticipation

→ manipulation or recognition of the competitive situation

→ execution of a highly practised action

This interpretation is compatible with the previous observational WUFC analysis concerning anticipated counterattacks and contextual technical efficiency.

Importantly, automaticity should not be interpreted as rigid repetition. In expert performance, an automatised technique may coexist with flexible selection of when, where and against which opponent behaviour it is deployed.

This provides a potential bridge between technical automaticity and contextual adaptability within the FLCPF.

These mechanisms were not directly measured by the present archival design, although previous observational WUFC research provides complementary empirical evidence regarding the technical-tactical skills expressed in this competitive population (Loio, 2021; Loio et al., 2020a, 2020b, 2022b; Pinto et al., 2020). Additional prospective research will be required to examine their contribution to development directly.

4.10 The WUFC as an International Career Platform

Because career follow-up extended through 2026, the longitudinal analysis captures career development occurring substantially beyond the historical 1988–2017 competitive-event window.

The expanded evidence reinforces and broadens the previous description of WUFC as a “career launch pad” (Loio, 2026). Numerous athletes competed at WUFC before subsequently participating in other important international organisations, championships, and circuits, and the expanded career audit demonstrates that this pattern was substantially broader than previously documented. The available historical evidence also indicates that the exposure, visibility, and contacts provided by the event contributed, in certain cases, to the opening of further competitive opportunities.

This sequence does not, however, mean that subsequent achievements were caused exclusively by WUFC participation. Athlete trajectories result from multifactorial processes involving pre-existing quality, training, competitive systems of origin, federative selection, accumulated experience, and subsequent opportunities. The absence of a single causal relationship does not, however, imply that WUFC participation was developmentally or professionally neutral.

On the contrary, competing within an international environment of this nature provided experience against different opponents, technical-tactical styles, rulesets, and competitive demands, as well as opportunities for exposure and demonstration of competence. These elements may contribute to the development of adaptability and competitive competence while simultaneously facilitating recognition, contacts, and further opportunities.

WUFC is therefore more appropriately characterised as a high-level international competitive platform and a relevant stage of experience, exposure, and career development. The subsequent international achievements of its athletes do not necessarily represent a transition from WUFC to a higher competitive level; they also constitute retrospective longitudinal evidence of the quality and depth of the competitive population already participating in WUFC.

4.11 Prior Athlete Selection and Interpretation of Elite Density

The interpretation of Elite Density should consider the selection processes that preceded international participation at WUFC. Athletes from visiting delegations were previously selected through competition and/or their respective federative and sporting systems to represent their teams or countries at the event. International participation therefore did not constitute random sampling from national combat-sport populations.

This process is particularly explicit in cases such as Ukraine, which was represented by its IFMA-FF National Free Fight Team. Consequently, the high Elite Density observed in some delegations should also be interpreted in light of pre-existing competitive quality and pre-event athlete selection.

This does not diminish the relevance of the findings. On the contrary, it contributes to characterising the nature of the WUFC competitive field: the concentration of athletes previously selected through national and federative competitive systems is itself an indicator of the quality of the athlete population assembled at the event.

The subsequently observed careers may therefore reflect the interaction between pre-existing competitive quality, prior selection, competitive experience and exposure at WUFC, and subsequent developmental and career opportunities, rather than an isolated effect attributable to any single component.

The archival longitudinal design does not permit estimation of the relative contribution of each component. This limitation does not invalidate the observed concentration of elite careers, but defines its interpretation: Elite Density describes the proportion of qualifying international careers among WUFC athletes within each analysed population, rather than the prevalence of elite athletes within the corresponding national populations.

4.12 Integration of Longitudinal and Theoretical Evidence

The study's strongest contribution lies in integrating several complementary levels of archival and longitudinal evidence.

Several components point in compatible directions:

Competitive records identify national and regional differences in WUFC performance.

Longitudinal career follow-up identifies substantial differences in the subsequent concentration of careers.

Table 2 demonstrates that these careers extend across multiple combat disciplines.

Table 3 quantifies their depth, density, and achievement intensity.

The multidisciplinary career audit provides athlete-level evidence of adaptation across different combat disciplines, organisations, and rulesets.

The observational evidence underlying the FLCPF provides an independent technical-tactical context for interpreting these longitudinal patterns.

The FLCPF provides a theoretical structure through which these observations can be interpreted in terms of representative interaction, technical-tactical versatility, contextual adaptability, and adaptive transfer.

Together, they form a coherent body of observational evidence supporting further tests of these propositions.

4.13 Limitations

Several limitations should qualify interpretation of the findings.

First, the dataset is historical and archival. Despite extensive reconstruction and auditing, missing records and incomplete documentation from the early period remain possible.

Second, identification of unique athletes depends on historical matching of names, transliteration, nationality information, and supplementary biographical verification. Athletes from Russia, Ukraine, the Caucasus, and other regions may appear under different Latin transliterations. The geographical delimitation of the corpus to international WUFC events held in Portugal also means that the findings characterise this observed competitive population rather than the complete historical universe of WUFC athletes or events held in other countries.

Third, Table 2, with 182 athletes, constitutes a documentarily qualified cohort according to the T1–T3 criteria; it does not imply that athletes outside the table lack historical or sporting relevance.

Fourth, the denominator-dependent analysis includes 182 qualifying careers over UA=554. Reconstruction by analytical origin allows national denominators, CD, ED, 95% CI, T1–T3 distribution, and EAI to be presented in Table 3. National analytical origin was reconstructed nominally and was adjudicated for all 554 identities after complete nominal review; this classification is distinct from historical delegation and does not eliminate the documentary uncertainty inherent in a longitudinal archive. Wilson 95% CIs represent the binomial precision of the observed proportions and do not directly incorporate archive-coverage error, classification error, or adjudication uncertainty.

Fifth, regional origin within Russia was closed only where positive documentary or biographical evidence existed. Nominal cross-checking identified 57 Dagestan/North Caucasus athletes among the 84 Russians; 52 met the T1–T3 criteria, producing regional ED of 91.2% (95% CI 81.1–96.2). Despite the closed regional denominator, interpretation remains conditioned by the archival nature and unequal quality of historical sources, which is why regional origins were not inferred from names or presumed ethnicity.

Sixth, comparisons of Elite Density between countries should consider differences in delegation-selection processes and participation opportunities. Some visiting populations were formed through prior competitive and federation selection, whereas Portugal's status as host country provided broader access and repeated participation. These differences affect denominator composition and prevent ED from being generalised to national combat-sport populations. They do not, however, invalidate internal comparison of the observed WUFC populations, provided that ED is interpreted jointly with Competitive Depth, confidence intervals, and Elite Achievement Intensity.

Seventh, opportunity structures differed substantially between the host country and visiting delegations.

Eighth, EAI is a study-specific descriptive index. Although transparent and reproducible, its weighting system has not been externally validated.

Ninth, tier classification necessarily compresses heterogeneous career trajectories into three analytical levels.

Tenth, the archival and longitudinal design cannot directly measure developmental, cultural, perceptual, or training mechanisms that may underlie the observed career patterns.

Eleventh, the observational chronology of careers cannot establish whether WUFC participation caused subsequent achievement.

Finally, the study combines datasets operating at different analytical levels—bouts, fight-participations, unique athletes, career histories, and regional origins. These levels were deliberately separated in the analysis but should not be interpreted as interchangeable observations.

Career status was assessed using documentary evidence available up to the 2026 follow-up cutoff. Athletes may continue to develop their careers after this date; consequently, career classifications represent verified status at the analytical cutoff rather than permanent final career outcomes. In addition, potential follow-up duration was not identical across athletes: participants from the earliest editions have a substantially longer time window through 2026 than participants from the most recent editions. This temporal heterogeneity may affect the opportunity to reach T1–T3 criteria and should be considered particularly where the temporal composition differs between national or regional origins.

4.14 Future Research

Future research should test the patterns identified here using prospective and comparative designs.

A particularly valuable extension would compare WUFC participants with matched athletes from the same countries, age groups, competitive periods, and disciplines who did not participate in WUFC.

Such a design could begin to distinguish:

selection effects

from:

competitive-exposure effects

Longitudinal survival or event-history analysis could examine the time between WUFC participation and subsequent participation in other relevant international organisations, controlling for age, prior experience, competitive record, and nationality.

Network analysis could examine whether specific coaches, clubs, federations, or regional training centres explain concentrations currently attributed at national or regional level.

The North Caucasus finding particularly warrants athlete-level reconstruction of club, coach, wrestling background, age of initiation, and pre-WUFC competitive experience.

5. Practical Applications

The competitive and longitudinal findings can inform several practical applications in combat-sport training and athlete development when interpreted alongside the FLCPF and relevant literature. These applications should be understood as evidence-informed developmental principles rather than causal prescriptions derived from the present observational design.

5.1 Develop Stable Technical Foundations within an Adaptable Repertoire

The findings support a distinction between technical stability and contextual adaptability.

Expert combat performance does not necessarily require an unlimited number of equally developed techniques. The FLCPF and existing observational evidence support the practical value of developing stable, highly reliable technical solutions within a broader adaptable repertoire.

This principle can be expressed as:

stable technical foundations + contextual adaptability = functional competitive versatility

Accordingly, training can go beyond simply increasing the number of techniques known by the athlete and also develop the capacity to recognise, create, and exploit situations in which highly practised techniques can be applied effectively.

5.2 Integrate Perception, Anticipation and Action

The observational findings and FLCPF interpretation suggest that technical execution should not be separated from the information that specifies when an action is appropriate.

Training tasks can therefore preserve meaningful opponent information whenever possible. (Araújo et al., 2006; Davids et al., 2013; Renshaw et al., 2019).

Rather than developing technique exclusively through predetermined repetition, coaches may progressively incorporate:

opponent information → anticipation → decision → technical execution

This does not imply abandoning repetition. Repetition remains important for technical stabilisation and automaticity, but its functional value may increase when the athlete subsequently learns to deploy the action under variable and representative opponent constraints.

5.3 Use Representative Opponent Interaction

Combat-sports expertise develops in an environment in which the opponent continuously changes the task.

Accordingly, training can include substantial interaction with opponents who differ in:

1. technical profiles;
2. tactical behaviours;
3. anthropometric characteristics;
4. rhythms;
5. stances;
6. experience levels;
7. offensive and defensive tendencies.

The objective is not variability for its own sake, but exposure to sufficiently representative problems that require continuous perception-action adaptation.

This principle is compatible with the FLCPF emphasis on representative interaction and contextual adaptability.

5.4 Integrate Striking and Grappling Where the Competitive Environment Requires Both

The longitudinal career evidence demonstrates substantial representation of athletes operating across environments that combine wrestling, grappling, striking and hybrid combat demands, while the FLCPF provides a theoretical basis for considering integration across these phases.

The multidisciplinary careers documented in Table 2 likewise demonstrate that athletes with qualifying international careers frequently operated across competitive environments requiring different combinations of striking, clinch, takedown, control and submission skills.

For hybrid full-contact combat environments, development can therefore avoid treating these components as completely independent technical-tactical domains.

Where appropriate to the ruleset, training should include transitions such as:

striking → clinch

clinch → takedown

takedown → control

control → submission / striking

and:

defensive grappling → return to striking

The capacity to connect phases may be as important as competence within any isolated phase. (Bueno et al., 2022; James et al., 2017; Miarka et al., 2019).

5.5 Develop Adaptive Transfer Rather than Rule-Specific Repetition Alone

The longitudinal careers documented in the study extend across multiple combat-sports rulesets.

This suggests practical value in distinguishing specialisation from over-specialisation. (Loio et al., 2022a; Renshaw et al., 2019).

Athletes can seek high competence under the rules in which they compete, while development systems may also benefit from preserving transferable capacities that remain functional when task constraints change.

A useful developmental objective may therefore be:

specialisation without loss of adaptability

This may be particularly relevant during earlier stages of development or for athletes expected to transition between related combat disciplines.

5.6 Competition Should Be Treated as a Developmental Environment

The WUFC historical population demonstrates that international competition can bring athletes into contact with unfamiliar technical and tactical systems.

Competition therefore provides more than an outcome measure.

It can expose athletes to:

new opponents + unfamiliar solutions + different tactical problems + competitive pressure

Coaches may consequently use competition as a source of diagnostic information, identifying which technical-tactical solutions remain functional under pressure and which require subsequent adaptation.

The present study does not establish that greater competition exposure automatically produces superior careers. Rather, it supports considering representative competition as one component of a broader developmental ecosystem.

5.7 Avoid Interpreting Development through Wins and Losses Alone

One important practical implication of the longitudinal analysis is that immediate competitive outcome and long-term career development should not be treated as equivalent.

A single victory or defeat provides limited information about an athlete's developmental trajectory.

Longitudinal evaluation should additionally consider:

technical progression

quality of decision-making

adaptability

opponent level

competitive exposure

transition between rulesets

and:

career progression over time

This is particularly relevant when evaluating developing athletes, for whom short-term competitive outcomes may not fully represent long-term potential. (Ericsson et al., 1993).

5.8 Implications for Federations and Athlete-Development Systems

The results also have implications beyond individual coaching.

Federations and development programmes may benefit from monitoring athletes longitudinally rather than evaluating programme effectiveness solely through medals or event-specific win rates.

A longitudinal monitoring framework could incorporate:

unique athletes entering the system

retention

competitive exposure

international participation

subsequent career progression

highest competitive level reached

and:

multidisciplinary transfer

The Competitive Depth, Elite Density and Elite Achievement Intensity measures developed in the present study provide one possible descriptive framework for retrospective or prospective monitoring, provided their limitations are recognised.

They should not be used as isolated rankings of federations or countries.

6. Conclusion

This study provides a longitudinal reconstruction of competitive participation in the historical WUFC corpus analysed in Portugal between 1988 and 2017 and of the subsequent development of the participating athletes' international careers, followed through 2026. The combination of Competitive Depth, Elite Density, statistical uncertainty, and Elite Achievement Intensity makes it possible to distinguish the absolute scale of career production, the proportion of athletes reaching the defined criteria, and the intensity of the achievements attained, without attributing causality to WUFC participation.

The expanded archival audit identified 466 effectively counted bouts, 932 fight-participations, and 554 unique athletes in the protected historical denominator. Longitudinal follow-up identified 182 athletes with qualifying and verified international careers.

Overall:

$$182 / 554 = 32.9\%$$

of the reconstructed denominator-dependent athlete population met the predefined qualifying international career criteria.

However, this development was not evenly distributed.

Russia showed the greatest Competitive Depth: 70 qualifying international careers, corresponding to 38.5% of the 182-athlete cohort.

The Russian distribution was $T1/T2/T3 = 14/56/0$, with $EAI = 2.20$.

Regional reconstruction additionally showed that $52/57 = 91.2\%$ (95% CI 81.1–96.2) of athletes positively verified as originating from Dagestan/North Caucasus met the qualifying international career criteria; these 52 athletes correspond to 74.3% of the 70 qualifying Russian careers.

This concentration constitutes one of the study's main longitudinal findings and is presented simultaneously as ED of the verified regional subgroup and as contribution to Russian Competitive Depth; the subgroup remains nested within Russia and is not added separately to national or overall totals.

Ukraine contributed 32 qualifying careers (17.6% of the cohort), Portugal 16 (8.8%), France 14 (7.7%), and Spain 10 (5.5%), confirming a broad and heterogeneous international distribution.

Overall, ED was 32.9% (182/554; 95% CI 29.1–36.9%), with $T1/T2/T3 = 28/152/2$ and $EAI = 2.14$.

The findings should be interpreted together with prior competitive selection, documentary heterogeneity, and the observational nature of the design.

Ukraine also showed substantial career representation, while the broader international dataset revealed considerable heterogeneity across national populations. Populations with small denominators occasionally produced high nominal Elite Density values, reinforcing the need to interpret proportional measures together with Competitive Depth, confidence intervals, and career-achievement tiers.

The 182-athlete cohort also demonstrates that subsequent development was multidisciplinary rather than exclusively MMA-specific. Qualifying international trajectories extended across MMA, pankration, professional boxing, kickboxing, K-1, full contact, grappling, submission competition, taekwondo, and associated combat-sport pathways.

This breadth supports the study's interest in adaptive transfer: the capacity to maintain functional competitive performance when task constraints and rulesets change.

The quantitative findings, career trajectories, and observational evidence are consistent with several characteristics associated with combat-sport expertise, including strong technical foundations, representative opponent interaction, anticipation, contextual adaptability, and multidisciplinary transfer. These mechanisms were not directly measured by the present archival design, although previous observational WUFC research provides complementary empirical evidence regarding the technical-tactical skills expressed in this competitive population (Loio, 2021; Loio et al., 2020a, 2020b, 2022b; Pinto et al., 2020). Additional prospective research will be required to examine their contribution to development directly.

These observations are consistent with the Fernando Loio Combat Performance Framework (FLCPF) and provide a historical empirical basis for its further investigation.

Likewise, the subsequent careers documented in the present study should not be attributed to WUFC participation through a single causal relationship. The observed trajectories reflect the interaction of multiple factors, including pre-existing athlete quality, prior competitive and federation selection, regional training systems, combat-sport culture, competitive experience and exposure at WUFC, and subsequent developmental and career opportunities.

Prior selection is particularly relevant to interpretation of Elite Density. Athletes in visiting delegations were selected through competition and/or their respective federation and sporting systems and were not random samples of national combat-sport practitioner populations. This does not diminish the relevance of the findings; rather, the concentration at WUFC of athletes previously selected through national competitive and federation systems helps characterise the quality and depth of the competitive field itself.

At the same time, the absence of a single demonstrated causal relationship does not imply that WUFC participation was developmentally or professionally neutral. Competition in this international environment provided experience against different opponents, technical-tactical styles, rules, and competitive demands, as well as opportunities for exposure, visibility, and demonstration of competence. In documented cases, that exposure was associated with the opening of new international competitive opportunities.

The evidence therefore supports a more precise interpretation: WUFC constituted a high-level international competitive platform and a relevant stage of experience, exposure, and career development within the longitudinal trajectories of a substantial and multidisciplinary population of combat-sports athletes. Some athletes arrived at WUFC already possessing significant competitive experience and achievements; others subsequently consolidated or expanded their international careers across different disciplines, organisations, and competitive circuits.

The Russian and North Caucasus findings are particularly relevant because competitive representation and subsequent career concentration converge within the same historical population. Regional ED of 91.2% (52/57; 95% CI 81.1–96.2), together with the 74.3% contribution to Russian CD and the international and multidisciplinary trajectories documented across the broader cohort, provides substantial longitudinal evidence of the quality and depth of the athlete population assembled at WUFC.

The study's principal contribution therefore does not lie in demonstrating a single causal relationship, but in reconstructing a rare longitudinal combat-sports population in which prior competitive selection, high-level international competition, multidisciplinary experience, exposure, and subsequent career development can be examined within the same historical framework.

The subsequent international achievements of WUFC athletes should therefore not be interpreted simply as progression from WUFC to a higher competitive level. They also constitute retrospective longitudinal evidence of the competitive quality and depth of the population already represented at WUFC. Future prospective research should further examine the relative contribution of selection, competitive experience, training environments, and other developmental mechanisms to the career patterns identified here.

7. Final Statements

7.1 Author Contributions

Fernando Loio was responsible for the conceptualisation of the study, historical archive reconstruction, data collection, athlete identification and career tracking, methodological development, quantitative integration, development and application of the Fernando Loio Combat Performance Framework, interpretation, manuscript preparation and revision.

7.2 Data Availability

The study is based on historical WUFC competition records relating to the corpus analysed between 1988 and 2017: the 30 WUFC World Championship editions held in Viseu, Lamego, and Peso da Régua and eight other relevant international WUFC events held in Portugal, specifically three in São Pedro do Sul (2001 and two in 2004), and one each in Vialonga (2002), Ponte da Barca (2003), Vizela (2004), Tábua (2006), and Castanheira de Pera (2008). These additional events are already incorporated into the reconstructed universe and are not counted as additional World Championship editions. The competitive corpus is complemented by athlete-career records and publicly accessible documentary sources used for longitudinal follow-up through 2026.

The aggregated data underlying Tables 2 and 3, together with the methodological definitions used for Competitive Depth, Elite Density, and Elite Achievement Intensity, constitute the study data package for deposit on the Open Science Framework (OSF). To ensure traceability without overloading the publication table, the supplementary archival version of Table 2 preserves the adjudication statuses, documentary qualifiers, and internal evidence codes used during the athlete-level audit. Historical archival material that cannot be redistributed publicly because of format, provenance, or third-party restrictions is documented through the corresponding audit record.

7.3 Ethical Considerations

The study involved retrospective analysis of historical competition records, archival documentation and publicly available career information.

The study relied exclusively on retrospective historical competition records, archival documentation and publicly available documentary career information; no interviews or newly collected human-participant data were included.

7.4 Conflicts of Interest

The principal investigator occupied multiple historical roles within the WUFC environment, including athlete, coach, founder/promoter, federation officer, manager and international representative. This insider position is explicitly acknowledged as a potential source of perspective and confirmation bias and is addressed through the reflexive and triangulation procedures described in the Methods section.

7.5 Acknowledgements

Acknowledgement is extended to the athletes, coaches, officials and organisations whose participation across the history of WUFC contributed to the archival record examined in this research.

7.6 Copyright and License

© Fernando Loio, 2026.

This work is licensed under the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0).

References

- Absolute Championship Akhmat. (2019, March 17). *ACA 93: Balaev vs. Zhamaldaev — Results*. https://www.aca-mma.com/en/news/aca-93-balaev-vs-zhamaldaev-results-cegjrGNS_822
- Absolute Championship Akhmat. (2020, November 6). *ACA 113: Kerefov vs. Gadzhiev 2 — Results*. https://www.aca-mma.com/en/news/aca-113-kerefov-vs-gadzhiev-2-results-aekmnz14_1041
- Absolute Championship Akhmat. (2024, July 31). *Чемпионский бой Гаджиев vs Гафоров состоится 4 октября в Грозном [Gadzhiev vs. Gaforov title fight to take place in Grozny on October 4]*. https://www.aca-mma.com/news/chempionskii-boi-gadzhiev-vs-gaforov-sostoitsya-4-oktyabrya-v-groznom-ehzHKRT5_1269
- Absolute Championship Akhmat. (n.d.). *ACA: Absolute Championship Akhmat*. <https://www.aca-mma.com/>
- Absolute Championship Akhmat. (n.d.). *Kurban Gadzhiev: Biography, news, results, photos, videos*. https://www.aca-mma.com/en/fighters/kurban-gadzhiev-3120_852
- Araújo, D., Davids, K., & Hristovski, R. (2006). The ecological dynamics of decision making in sport. *Psychology of Sport and Exercise*, 7(6), 653–676. <https://doi.org/10.1016/j.psychsport.2006.07.002>
- Bellator MMA. (n.d.). *Bellator MMA [Historical organization website]*. <https://www.bellator.com/>
- Bleacher Report. (2016, February 19). *The beaten path: WSOF bantamweight Timur Valiev is Dagestan's latest prospect*. <https://bleacherreport.com>
- Body & Mind Unlimited. (2014, August 3). *Acknowledgement from world kick boxing champion Jay Bimpson*. <https://www.bodyandmindunlimited.co.uk/index.php/blog/entry/acknowledgement-from-world-kick-boxing-champion-jay-bimpson>
- BoxRec. (n.d.). *Boxing records database*. <https://boxrec.com/>
- Boxclub Niederkassel. (2022). *Neuer Kickboxcoach Ibrahim Barakat*. <https://www.boxclub-niederkassel.de/news-2026/2022>
- BRAVE Combat Federation. (2021). *BRAVE CF 55 results*. <https://www.bravecf.com/event-results/brave-cf-55-result>
- BRAVE Combat Federation. (2021, February 27). *Kamal Magomedov: Latest top-tier addition to BRAVE CF's Super Welterweight roster*. <https://www.bravecf.com/news/kamal-magomedov-latest-top-tier-addition-to-brave-cf-s-super-welterweight-roster>
- BRAVE Combat Federation. (2023, February 18). *BRAVE CF 69*. <https://www.bravecf.com/events/brave-cf-69>
- BRAVE Combat Federation. (2023, February 6). *BRAVE CF 69: Truly global fight card announced with 12 nations represented*. <https://www.bravecf.com/news/brave-cf-69-truly-global-fight-card-announced-with-12-nations-represented>
- BRAVE Combat Federation. (2023, February 9). *Kamil Magomedov, ahead of BRAVE CF 69: I will expose Kubanychbek's weaknesses*. <https://www.bravecf.com/news/kamil-magomedov-ahead-of-brave-cf-69-i-will-expose-kubanychbek-s-weaknesses->
- BRAVE Combat Federation. (2023, May 21). *BRAVE CF 71: Super Welterweight champion Marcin Bandel takes on Kamal Magomedov in first title defense*. <https://www.bravecf.com/news/brave-cf-71-super-welterweight-champion-marcin-bandel-takes-on-kamal-magomedov-in-first-title-defense>
- BRAVE Combat Federation. (2023, November 25). *BRAVE CF 76*. <https://www.bravecf.com/events/brave-cf-76>
- BRAVE Combat Federation. (2024, October 20). *BRAVE CF 89 results: Luiz Cado crowned new champion in dramatic fashion following legendary fight card*. <https://www.bravecf.com/news/brave-cf-89-results-luiz-cado-crowned-new-champion-in-dramatic-fashion-following-legendary-fight-card>
- BRAVE Combat Federation. (2024, September 4). *BRAVE CF's return to Spain will be headlined by Super Welterweight world title fight*. <https://www.bravecf.com/news/brave-cf-s-return-to-spain-will-be-headlined-by-super-welterweight-world-title-fight>
- BRAVE Combat Federation. (n.d.). *Kamil Magomedov: Fighter bio*. <https://www.bravecf.com/fighter-info/kamil-magomedov>

- Bueno, J. C. A., Faro, H., Lenetsky, S., Gonçalves, A. F., Dias, S. B. C. D., Ribeiro, A. L. B., da Silva, B. V. C., Cardoso Filho, C. A., de Vasconcelos, B. M., Serrão, J. C., Andrade, A., Souza-Junior, T. P., & Claudino, J. G. (2022). Exploratory systematic review of mixed martial arts: An overview of performance of importance factors with over 20,000 athletes. *Sports*, 10(6), Article 80. <https://doi.org/10.3390/sports10060080>
- Bushido.ru. (2009). *15 Чемпионат мира по MMA WUFC 09 [15th WUFC MMA World Championship 2009]*. https://bushido.ru/sob/lyubiteli_-_turniry/world/15champ09world-wufc/?p=1
- Cage Warriors. (n.d.). *Cage Warriors Fighting Championship*. <https://cagewarriors.com/>
- Combat Sports Academy. (n.d.). *Instructors*. <https://www.combatsportsacademy.net/instructors>
- Davids, K., Araújo, D., Correia, V., & Vilar, L. (2013). How small-sided and conditioned games enhance acquisition of movement and decision-making skills. *Exercise and Sport Sciences Reviews*, 41(3), 154–161. <https://doi.org/10.1097/JES.0b013e318292f3ec>
- England Boxing. (2010, May 14). *123rd ABAE National Championships*. <https://www.englishboxing.org/results/123rd-aba-national-championships/>
- Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363–406. <https://doi.org/10.1037/0033-295X.100.3.363>
- European Boxing Union. (n.d.). *European Boxing Union*. <https://www.boxebu.com/>
- Federação Portuguesa de Judo. (2011). *Relatório de actividades e contas 2010*. <https://www.fpj.pt/wp-content/uploads/2016/08/FPJ-Relat%C3%B3rio-de-Actividades-e-Contas-2010.pdf>
- FightMatrix. (n.d.). *MMA fighter database*. <https://www.fightmatrix.com/>
- FightTime.ru. (n.d.). *Бойцы MMA [MMA fighters database]*. <https://fighttime.ru/>
- Franchini, E., Del Vecchio, F. B., Matsushigue, K. A., & Artioli, G. G. (2011). Physiological profiles of elite judo athletes. *Sports Medicine*, 41(2), 147–166. <https://doi.org/10.2165/11538580-000000000-00000>
- Fédération Internationale de Bâton de Défense et Disciplines Associées. (2002, December 14). *Rencontre internationale au Portugal [International competition record]*. <https://www.fibdda.org/fibd/fr/evenements/14122002vialonga.php>
- GLORY Kickboxing. (2013, March 23). *GLORY 5 London: Official fight results*. <https://glorykickboxing.com>
- GLORY. (n.d.). *GLORY Kickboxing*. <https://glorykickboxing.com/>
- Hristovski, R., Davids, K., Araújo, D., & Passos, P. (2006). How boxers decide to punch a target. *Journal of Sports Science and Medicine*, 5(CSSI), 60–73.
- GNP1. (2014, November 5). *Cologne Fight Academy Fight Night*. <https://www.gnp1.de/boxen/allgemein/news/cologne-fight-academy-fight-night>
- International Kickboxing Federation. (2006, March). *IKF news: March 2006*. <https://www.ikfkickboxing.com/News06March.htm>
- International Kickboxing Federation. (n.d.). *International Kickboxing Federation*. <https://www.ikfkickboxing.com/>
- James, L. P., Kelly, V. G., & Beckman, E. M. (2016). Periodization for mixed martial arts. *Strength and Conditioning Journal*, 38(6), 60–67. <https://doi.org/10.1519/SSC.0000000000000269>
- James, L. P., Robertson, S., Haff, G. G., Beckman, E. M., & Kelly, V. G. (2017). Identifying the performance characteristics of a winning outcome in elite mixed martial arts competition. *Journal of Science and Medicine in Sport*, 20(3), 296–301. <https://doi.org/10.1016/j.jsams.2016.08.001>
- Káóčko. (2017, August 26). *WUFC Portugal 2017 — Only the Strong*. <https://www.kaocko.cz/statistiky/turnaje/wufc-portugal-2017-only-the-strong-27700>
- Káóčko. (n.d.). *Jose Goncalves — Gutoh Smedo*. <https://www.kaocko.cz/statistiky/bojovnici/jose-goncalves-40945>
- Le Dauphiné Libéré. (2013, August 28). *Louis Bley sacré champion du monde !* <https://www.ledauphine.com/ardeche/2013/08/28/louis-bley-sacre-champion-du-monde>

- Lenetsky, S., & Harris, N. (2012). Understanding the physiology and interplay of strength and power qualities in mixed martial arts. *Strength and Conditioning Journal*, 34(1), 12–19. <https://doi.org/10.1519/SSC.0b013e31823ebb22>
- Loio, F. (2021). *Ultimate Full Contact WUFC World Championship: Technical and tactical performance analysis through observation of competitive performance [Doctoral dissertation, Universidade da Beira Interior]*. UBI Repositório. <http://hdl.handle.net/10400.6/12069>
- Loio, F. (2026a). *The Fernando Loio Combat Performance Framework (FLCPF): An ecological-integrative conceptual model for combat performance and coaching practice*. Open Science Framework. <https://doi.org/10.17605/OSF.IO/9E872>
- Loio, F. (2026b). *World Ultimate Full Contact Championship (1988–2017): Thirty years of elite international competition in Portugal*. Open Science Framework. <https://doi.org/10.17605/OSF.IO/6Z7TC>
- Loio, F. (2026c). *Institutional ecosystems and Soviet–Russian combat heritage as technical-tactical infrastructure for elite career development in pankration, free fight, MMA, kickboxing, and boxing (Version 3)*. Open Science Framework. <https://doi.org/10.17605/OSF.IO/5726E>
- Loio, F., Marinho, D. A., Teixeira, J. E., Forte, P., Neiva, H. P., Branquinho, L., & Ferraz, R. (2022a). The efficiency and transversality of traditional boxing skills to several full-contact combat sports: A narrative review. *Archives of Budo Science of Martial Arts and Extreme Sports*, 18, 1–10. <https://doi.org/10.5604/01.3001.0016.0900>
- Loio, F., Neiva, H. P., Marques, M. C., Marinho, D. A., Branquinho, L., & Ferraz, R. (2022b). Utilizing contextualized skills and coach intervention to optimize the performance of Ultimate Full Contact fighters. *Ido Movement for Culture: Journal of Martial Arts Anthropology*, 22(4), 22–33. <https://doi.org/10.14589/ido.22.4.4>
- Loio, F., Neiva, H. P., Nunes, C., Branquinho, L. C., & Ferraz, R. (2020a). Ultimate Full Contact offensive efficiency analysed through styles and combat distances: A confluence of cognitive and ecological approaches. *Archives of Budo Science of Martial Arts and Extreme Sports*, 16, 17–27.
- Loio, F., Neiva, H. P., Nunes, C., Branquinho, L., & Ferraz, R. (2020b). Anticipated, simultaneous and posterior counter-attack efficiency in Ultimate Full Contact. *Archives of Budo Science of Martial Arts and Extreme Sports*, 16(1), 53–62.
- Pinto, F. C. L., Neiva, H. P., Nunes, C., Marques, M. C., Sousa, A. C., Marinho, D. A., Branquinho, L., & Ferraz, R. (2020). Ultimate Full Contact: Fight outcome characterization concerning their methods, occurrence times and technical–tactical developments. *International Journal of Environmental Research and Public Health*, 17(19), Article 7094. <https://doi.org/10.3390/ijerph17197094>
- M-1 Global. (n.d.). *M-1 Global*. <https://m-1global.com/>
- Mercer, J. (2007). The challenges of insider research in educational institutions: Wielding a double-edged sword and resolving delicate dilemmas. *Oxford Review of Education*, 33(1), 1–17. <https://doi.org/10.1080/03054980601094651>
- Miarka, B., Bello, F. D., Brito, C. J., & Amtmann, J. (2019). Technical-tactical performance of mixed martial arts considering fight outcomes. *Journal of Human Kinetics*, 68(1), 167–176. <https://doi.org/10.2478/hukin-2019-0059>
- Milazzo, N., Farrow, D., & Fournier, J. F. (2016). Effect of implicit perceptual-motor training on decision-making skills in combat athletes. *Perceptual and Motor Skills*, 123(1), 300–323. <https://doi.org/10.1177/0031512516659899>
- MMA-Core. (n.d.). *MMA fighters, events and results database*. <https://www.mma-core.com/>
- Newsday. (2010, September 26). *Snaggs, Bimpson fight a no-contest*. <https://archives.newsday.co.tt/2010/09/26/snaggs-bimpson-fight-a-no-contest/>
- Novoe Delo. (n.d.). *Novoe Delo [Dagestan news archive]*. <https://ndelo.ru/>
- OnTheMat. (2006, August 25). *WUFC: World Ultimate Full-Contact – Free Fight Championship results*. <https://onthemat.com/wufc-world-ultimate-full-contact-free-fight-championship-results/>
- Professional Fighters League. (n.d.). *Professional Fighters League*. <https://pflmma.com/>

- Renshaw, I., Davids, K., Newcombe, D., & Roberts, W. (2019). *The constraints-led approach: Principles for sports coaching and practice design*. Routledge.
- RIA Dagestan. (n.d.). *Единоборства [Martial arts]*. https://riadagestan.ru/news/martial_arts/
- Ruhe Boxing. (n.d.). *Kickboxen im Ruhe-Boxing-Gym*. <https://www.ruheboxing.de/kurse/kickboxen/>
- Sherdog. (2017, August 26). *WUFC Portugal 2017: Only the Strong*. <https://www.sherdog.com/events/WUFC-Portugal-2017-Only-the-Strong-63661>
- Sherdog. (2026a, June). *Magomed Magomedkerimov MMA stats, biography, and fight history*. <https://www.sherdog.com/fighter/Magomed-Magomedkerimov-77573>
- Sherdog. (2026b, June). *Timur Valiev MMA stats, biography, and fight history*. <https://www.sherdog.com/fighter/Timur-Valiev-70605>
- Sherdog. (n.d.). *World Ultimate Full Contact [Organization event archive]*. <https://www.sherdog.com/organizations/World-Ultimate-Full-Contact-955>
- SpaceBoxing. (n.d.). *Resultados Mix Fight Events Castellón*. <https://www.spaceboxing.com/resultados-mix-fight-events-castellon/>
- Sport-Nation. (n.d.). Historical combat-sports results archive [Web archive consulted during athlete audit].
- Tapology. (2026a, June). *Magomed Magomedkerimov fighter profile*. <https://www.tapology.com/fightcenter/fighters/magomedkerimov>
- Tapology. (2026b, June). *Stéphane Susperregui fighter profile*. <https://www.tapology.com/fightcenter/fighters/susperregui>
- Tapology. (2026c, June). *Timur Valiev fighter profile*. <https://www.tapology.com/fightcenter/fighters/45318-timur-valiev>
- Tapology. (n.d.). *Mixed martial arts events and fighter database*. <https://www.tapology.com/>
- Trinidad and Tobago Guardian. (2010, March 26). *Balfour wins Wushu gold*. <https://www.guardian.co.tt/article-6.2.331638.2b4e53c933>
- Ultimate Fighting Championship. (n.d.). *UFC athletes*. <https://www.ufc.com/athletes/all>
- Unluer, S. (2012). Being an insider researcher while conducting case study research. *The Qualitative Report*, 17(29), 1–14. <https://doi.org/10.46743/2160-3715/2012.1752>
- Wilson, E. B. (1927). Probable inference, the law of succession, and statistical inference. *Journal of the American Statistical Association*, 22(158), 209–212. <https://doi.org/10.1080/01621459.1927.10502953>
- World Association of Kickboxing Organizations. (n.d.). *WAKO: World Association of Kickboxing Organizations*. <https://www.wako.sport/>
- World Boxing Council. (n.d.). *World Boxing Council*. <https://wbcboxing.com/>
- World Boxing Organization. (n.d.). *World Boxing Organization*. <https://www.wboboxing.com/>
- World Ultimate Full Contact. (n.d.). *World Ultimate Full Contact*. <https://ultimatefullcontact.tripod.com/>
- World Ultimate Full Contact. (n.d.). *WUFC fighters and historical results*. <https://ultimatefullcontact.tripod.com/wufcfighters.htm>
- World Ultimate Full Contact. (n.d.). *WUFC world ranking*. https://ultimatefullcontact.tripod.com/wufc_world_ranking.htm
- WUFC World Ultimate Full Contact Associação. (1988–2017). Registos competitivos das edições 1.^a a 30.^a do World Ultimate Full Contact Championship [Unpublished competitive archive: Written records and Excel files].