Injury Surveillance Studies

2025 Rugby Europe Championship (Men)

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1. INTRODUCTION

Understanding the incidence and nature of the injuries sustained during the practice of rugby is key in order to clarify the risks posed to players. Due to its nature as a contact sport, rugby, like ice hockey, lacrosse, and American football, has a higher injury incidence than non-contact sports. Through Injury Surveillance Studies in various competitions, it is possible to gain an understanding of how, where and when injuries happen, which is a fundamental requirement to advance player welfare standards across all ages, levels, formats and settings of the game.

Several Injury Surveillance Studies have been implemented previously in 15-a-side World Rugby Competitions[1–4], as well as the Injury Surveillance Studies that have been conducted in the Rugby Europe Championship (2023-2024) and the Rugby Europe Super Cup (2023-2024).

Rugby Europe is committed to implementing injury surveillance studies at all major Rugby Europe tournaments and to disseminate the results within the Rugby community.

The aims of these studies are:

- To record and analyze injuries sustained by players at the men's and women's Rugby Europe Competitions.
- To identify injury trends.
- To bring injury-related areas of concern to the attention of Rugby Europe's Chief Medical Officer and when appropriate to World Rugby's Chief Medical Officer.

This report continues the on-going study of Rugby Europe competitions by reporting injuries sustained during the Men's 2025 Rugby Europe Championship.

2. METHODS

This study was conducted in accordance with the definitions and protocols described in the World Rugby approved consensus statement on definitions and procedures for injury surveillance studies in Rugby[5].

The definition of injury was: 'Any match injury sustained during the 2025 Men's Rugby Europe Championship (MREC) that prevents a player from taking a full part in all normal training activities and/or match play for more than one day following the day of injury'. A recurrent injury was defined as 'An injury (as defined above) of the same type and at the same site as an index injury and which occurs after a player's return to full participation from the index injury'.

Specific injuries were classified using the OSICS 10 coding system[6]. The study also recorded the injury location, type and cause together with the event leading to the injury.

The injury severity was determined by the number of days a player was injured: a player was deemed to be injured until he/she could undertake full, normal training and be available for match selection whether he/she was actually selected. Medical staff were required to make an informed clinical judgment about a player's fitness to train/play on those days when players were not scheduled to train or play. Injured players were followed up after each tournament to obtain their return-to-play date: the return-to-play dates for players with injuries that remained unresolved 3 months after the final match in the Men's REC were defined on the basis of the player's medical staff's judgment and prognosis. The complete lists of categories and sub-categories used for categorizing injury location and injury types are provided in the Rugby consensus publication[5].

Only match injuries resulting in > 1 day of absence from training or match-play were recorded in this study. Non-match-play injuries were not included in this injury surveillance study.

3. DATA COLLECTION

Prior to the tournament, the purpose of the epidemiological study was outlined to each participating team. The player's anthropometric information was recorded: (playing position [back, forward]; date of birth; body mass [Kg]; stature [cm]); players joining a country's squad at a later date were added to the list of players and the anthropometric data recorded at the time the player joined the squad.

Team medical staff prospectively recorded injuries sustained during each match. Detailed information about each injury (date of injury, date of return to play, location and type of injury, cause of injury, event leading to injury) was also recorded by team medical staff. Injuries were understood to be resolved when injured players returned to play/training.

Eight countries (Belgium, Germany, Georgia, Netherlands, Portugal, Romania, Spain and Switzerland) were involved in the Men's REC 2025.

4. RESULTS

All participating teams reported data in accordance with the definitions and protocols described in the World Rugby approved consensus statement on definitions and procedures for injury surveillance studies in Rugby[5].

4.1. Players' anthropometric data

Table 1 summarises the numbers and anthropometric data for players, categorised as backs, forwards and all players, taking part in REC 2025. Table 1.1 summarises anthropometric data within players' grouped positions.

The total sample population for the study was 300 players (117 backs; 183 forwards). The mean age was 26,9 years (backs: 26,6 years; forwards: 27,0 years; p =0,458). The average stature for all players

was 185,1 cm; forwards (187,3 cm) were significantly taller than backs (181,6 cm) (p<0,001). The average body mass for all players was 100,2 kg; forwards (108,5 kg) were significantly heavier than backs (87,3 kg) (p<0,001).

Table 1. Players' anthropometric data			
Measure	Mean (± standard deviation)		
	Backs	Forwards	All players
Players (n)	117	183	300
Stature (cm)	181,6 (6,0)	187,3 (6,8)	185,1 (7,1)
Body Mass (kg)	87,3 (9,9)	108,5 (12,0)	100,2 (15,3)
Age (years)	26,6 (4,4)	27,0 (4,1)	26,9 (4,2)

Table 1.1. Players' anthropometric data						
Measure	Mean (± standard deviation)					
	Front Row	Second Row	Third Row	Halves	Inside backs	Outside backs
Players (n)	86	46	51	35	28	54
Stature (cm)	183,7 (5,2)	193,8 (6,4)	187,4 (5,0)	177,7 (6,4)	185,5 (4,0)	182,1 (5,1)
Body Mass (kg)	112,5 (13,0)	110,5 (9,3)	100,1 (7,5)	81,2 (9,3)	95,9 (8,3)	86,8 (7,7)
Age (years)	27,3 (4,3)	27,3 (4,4)	26,3 (3,3)	27,2 (4,9)	26,9 (3,7)	26,1 (4,3)

4.2. Match injuries

4.2.1. Injury incidence

Table 2 summarises the match injury numbers, exposures and incidences for players, categorised as backs, forwards and all players, taking part in REC 2025.

The total number of injuries sustained was 43 (backs: 16; forwards: 27) and the total match exposure was 800,0 player-hours (backs: 373,0; forwards: 427,0). The overall match incidence was 53,8 injuries/1000 match hours (backs: 42,9; forwards: 63,2). There is no statistically significant difference (p=0,219) in the incidence values reported for backs and forwards.

Table 2. Match injury frequency, exposure, and injury incidence			
Measure	Backs	Forwards	All players
Injuries (n)	16	27	43
Exposure (player-match-hours)	373,0	427,0	800,0
Incidence (95% confidence interval)	42,9 (22,3–63,5)	63,2 (40,1–86,3)	53,8 (38,1–69,4)

4.2.2. Injury severity

Table 3 summarises the mean and median match injury severity data for players, categorised as backs, forwards and all players, taking part in REC 2025.

The mean severity of all injuries sustained was 39,9 days missed (backs: 33,2 days; forwards: 43,8 days). The median severity of all injuries sustained was 21,0 days for all players (backs: 20,0 days; forwards: 21,0 days). There were no significant differences between backs and forwards for either the mean (p= 0,495) or median severities (p=0,480).

Table 3. Mean and median match injury severity (days lost)			
Measure	Severity (95% Confidence interval), days		
	Backs	Forwards	All players
Mean (95% confidence interval)	33,2 (14,6-51,8)	43,8 (17,6-70,0)	39,9 (22,5-57,2)
Median (95% confidence interval)	20,0 (13,0-31,0)	21,0 (13,0-40,0)	21,0 (14,0-36,0)

Table 4 summarises the proportion of match injuries by time-loss data for players, categorised as backs, forwards and all players, taking part in REC 2025.

Moderate injuries (8-28 days of time loss) were the most frequent, accounting for 51,2% of all cases, with backs experiencing 68,8% and forwards 40,7%. Severe injuries (29-90 days) represented 27,9% overall, more common in forwards (33,3%) than in backs (18,8%). Major injuries (>90 days of time loss) accounted for 9,3%, occurring more among backs (12,5%) compared to forwards (7,4%). Minor

injuries (2-7 days) were least frequent overall (11,6%) but notably absent among backs (0,0%) and more prevalent in forwards (18,5%).

Table 4. Proportion of match injuries by time-loss category			
Measure	%		
	Backs	Forwards	All players
Minor (2-7 days)	0,0	18,5	11,6
Moderate (8-28 days)	68,8	40,7	51,2
Severe (29-90 days)	18,8	33,3	27,9
Major (>90 days)	12,5	7,4	9,3

4.2.3. Injury burden

The total days-absence resulting from match injuries sustained during the REC 2025 was 1714 days-absence (backs: 531; forwards: 1183).

Injury burden, which is equal to injury incidence x mean severity, is an important ISS output measure, as it provides an overall indication of the risk of injury[7,8]. The injury burden in the REC 2025 was 2146 days lost/1000 player-hours (backs: 1424; forwards: 2768 days lost).

4.2.4. Injury location

Table 5 summarises the proportion of match injuries by injury location data for players, categorised as backs, forwards and all players, taking part in REC 2025.

The most common anatomic location of injury for all players was lower limb (48,8%), followed by upper limb (23,3%) and head/neck (20,9%). Regarding specific injury locations, the most frequent were shoulder/clavicle (18,6%), posterior thigh (11,6%), and head/face (16,3%).

Among backs, lower limb injuries were most common (56,3%), especially in the posterior thigh (18,8%) and ankle (18,8%), followed by head/neck injuries (25,0%). For forwards, lower limb injuries

also predominated (44,4%), mainly in the anterior thigh (11,1%), lower leg (11,1%), and posterior thigh (7,4%), with frequent shoulder/clavicle (22,2%) and head/face (11,1%) injuries.

Table 5. Proportion of match injuries by injury location			
Measure	% (95% Confidence interval)		
	Backs	Forwards	All players
Head / Neck	**25,0 (3,8–46,2)**	**18,5 (3,9–33,2)**	**20,9 (8,8–33,1)**
Head/face	25,0 (3,8–46,2)	11,1 (0,0–23,0)	16,3 (5,2–27,3)
Neck/cervical spine	-	7,4 (0,0–17,3)	4,7 (0,0–10,9)
Upper limb	**12,5 (0,0–28,7)**	**29,6 (12,4–46,9)**	**23,3 (10,6–35,9)**
Shoulder/clavicle	12,5 (0,0–28,7)	22,2 (6,5–37,9)	18,6 (7,0–30,2)
Upper arm	-	3,7 (0,0–10,8)	2,3 (0,0–6,8)
Elbow	-	-	-
Forearm	-	-	-
Wrist/hand/fingers	-	3,7 (0,0–10,8)	2,3 (0,0–6,8)
Trunk	**6,3 (0,0–18,1)**	**7,4 (0,0–17,3)**	**7,0 (0,0–14,6)**
Ribs/upper back	6,3 (0,0–18,1)	7,4 (0,0–17,3)	7,0 (0,0–14,6)
Abdomen	-	-	-
Low back	-	-	-
Sacrum/pelvis	-	-	-
Lower limb	**56,3 (31,9–80,6)**	**44,4 (25,7–63,2)**	**48,8 (33,9–63,8)**
Hip/groin	-	-	-
Thigh, anterior	-	11,1 (0,0–23,0)	7,0 (0,0–14,6)
Thigh, posterior	18,8 (0,0–37,9)	7,4 (0,0–17,3)	11,6 (2,0–21,2)
Knee	12,5 (0,0–28,7)	7,4 (0,0–17,3)	9,3 (0,6–18,0)
Lower leg	6,3 (0,0–18,1)	11,1 (0,0–23,0)	9,3 (0,6–18,0)
Ankle	18,8 (0,0–37,9)	3,7 (0,0–10,8)	9,3 (0,6–18,0)
Foot/toe	-	3,7 (0,0–10,8)	2,3 (0,0–6,8)

4.2.5. Injury type

Table 6 summarises the proportion of match injuries by injury type for players, categorised as backs, forwards and all players, taking part in REC 2025.

The most common injury types among all players were muscle/tendon injuries (44,2%), followed by joint/ligament injuries (37,2%) and central/peripheral nervous system injuries (16,3%). Forwards

showed a higher proportion of muscle/tendon injuries (55,6%) compared to backs (25,0%), while backs sustained more joint/ligament injuries (43,8%) than forwards (33,3%).

Regarding specific injury types, forwards most frequently suffered muscle strain/cramp (29,6%), sprain/ligament (22,2%) and haematoma/bruise (18,5%). Among backs, sprain/ligament injuries (31,3%) and concussion (25,0%) were the most common, followed by muscle strain/cramp (12,5%).

Table 6. Proportion of match injuries by injury type			
Measure	% (95% Confidence interval)		
	Backs	Forwards	All players
Bone	**6,3 (0,0–18,1)**	**-**	**2,3 (0,0–6,8)**
Fracture	6,3 (0,0–18,1)	-	2,3 (0,0–6,8)
Other bone injury	-	-	-
C/PNS	**25,0 (3,8–46,2)**	**11,1 (0,0–23,0)**	**16,3 (5,2–27,3)**
Concussion	25,0 (3,8–46,2)	11,1 (0,0–23,0)	16,3 (5,2–27,3)
Nerve injuries	-	-	-
Joint (non-bone) / ligament	**43,8 (19,4–68,1)**	**33,3 (15,6–51,1)**	**37,2 (22,8–51,7)**
Dislocation / subluxation	12,5 (0,0–28,7)	3,7 (0,0–10,8)	7,0 (0,0–14,6)
Meniscus / Disc Injury	-	7,4 (0,0–17,3)	4,7 (0,0–10,9)
Sprain/ligament	31,3 (8,5–54,0)	22,2 (6,5–37,9)	25,6 (12,5–38,6)
Other	-	-	-
Muscle / tendon	**25,0 (3,8–46,2)**	**55,6 (36,8–74,3)**	**44,2 (29,3–59,0)**
Haematoma/bruise	12,5 (0,0–28,7)	18,5 (3,9–33,2)	16,3 (5,2–27,3)
Muscle strain/cramp	12,5 (0,0–28,7)	29,6 (12,4–46,9)	23,3 (10,6–35,9)
Tendon injury/tendinopathy	-	7,4 (0,0–17,3)	4,7 (0,0–10,9)
Other	-	-	-
Skin	**-**	**-**	**-**
Abrasion	-	-	-
Laceration	-	-	-
Other types	**-**	**-**	**-**
Visceral	-	-	-
Other	-	-	-

C/PNS: Central and Peripheral Nervous System

4.2.6. Most common and highest risk injuries

Table 7 identifies the most common match injuries by injury diagnosis for players, categorised as backs, forwards and all players, taking part in REC 2025.

The most common injury was concussion (all players: 16,3%; backs: 25,0%; forwards: 11,1%).

Table 7. The four most common injury diagnoses reported for backs, forwards and all players (% of all reported match injuries)

Backs		Forwards		All players	
Injury	%	Injury	%	Injury	%
Concussion	25,0	Concussion	11,1	Concussion	16,3
Hamstring strain	12,5	MCL injury knee	7,4	Hamstring strain	9,3
MCL injury knee	6,3	Cervical disc sprain	7,4	MCL injury knee	7,0
Ankle sprain	6,3	Hamstring strain	7,4	Cervical disc sprain	4,7

Table 8 summarises the injuries with greatest burden for players, categorised as backs, forwards and all players, taking part in REC 2025.

The injuries with the greatest burden across all players were supraspinatus tendon injury (17,3%) and AC joint sprain (13,0%), followed by ankle fracture (7,7%) and MCL injury of the knee (5,6%). Among backs, ankle fracture (24,9%) and MCL injury (18,1%) caused the most time loss, while for forwards, supraspinatus injury (25,0%) and AC joint sprain (18,9%) accounted for the greatest burden.

Table 8. The four injury diagnoses with greatest burden reported for backs, forwards and all players (% of all reported days lost to match injuries)

Backs		Forwards		All players	
Injury	%	Injury	%	Injury	%
Ankle Fracture	24,9	Supraspinatus injury	25,0	Supraspinatus injury	17,3
MCL injury knee	18,1	AC joint sprain	18,9	AC joint sprain	13,0
AC joint sprain	11,7	Cervical Disc sprain	7,6	Ankle Fracture	7,7
Concussion	11,1	Medial gastroc strain	7,6	MCL injury knee	5,6

4.2.7. Injury onset

Table 9 summarises the proportion of match injuries by nature of onset data for players, categorised as backs, forwards and all players, taking part in REC 2025.

Acute injuries were the most frequent for both the overall sample and by playing position.

Table 9. Proportion of reported match injuries by nature of onset			
Measure	% (95% Confidence interval)		
	Backs	Forwards	All players
Acute	87,5 (71,3–100,0)	88,9 (77,0–100,0)	88,4 (78,8–98,0)
Gradual	12,5 (0,0–28,7)	11,1 (0,0–23,0)	11,6 (2,0–21,2)

4.2.8. Cause of injury onset

Table 10 summarises the proportion of match injuries by cause of onset data for players, categorised as backs, forwards and all players, taking part in REC 2025.

Most match injuries (88.4%) were due to contact, while 11,6% were non-contact. Both backs (87,5%) and forwards (88,9%) showed similarly high frequencies of contact-related injuries.

Table 10. Proportion of reported match injuries by cause of onset			
Measure	% (95% Confidence interval)		
	Backs	Forwards	All players
Contact	87,5 (71,3–100,0)	88,9 (77,0–100,0)	88,4 (78,8–98,0)
Non-contact	12,5 (0,0–28,7)	11,1 (0,0–23,0)	11,6 (2,0–21,2)

4.2.9. Match events leading to injury

Table 11 summarises the match events causing the injuries suffered by players, categorised as backs, forwards and all players, taking part in REC 2025.

The most common match event leading to injury was tackling (37,2%), followed by being tackled (27,9%), running (11,6%), ruck (7,0%) and maul (7,0%). Forwards were most frequently injured while

tackling (40,7%), whereas for backs, being tackled was the leading cause of injury (37,5%), followed by tackling (31,3%).

Table 11. Proportion of reported match injuries by match event leading to injury			
Measure	% (95% Confidence interval)		
	Backs	Forwards	All players
Collision	12,5 (0,0–28,7)	3,7 (0,0–10,8)	7,0 (0,0–14,6)
Kicking	-	-	-
Lineout	-	-	-
Maul	-	11,1 (0,0–23,0)	7,0 (0,0–14,6)
Ruck	6,3 (0,0–18,1)	7,4 (0,0–17,3)	7,0 (0,0–14,6)
Running	12,5 (0,0–28,7)	11,1 (0,0–23,0)	11,6 (2,0–21,2)
Scrum	-	3,7 (0,0–10,8)	2,3 (0,0–6,8)
Tackled	37,5 (13,8–61,2)	22,2 (6,5–37,9)	27,9 (14,5–41,3)
Tackling	31,3 (8,5–54,0)	40,7 (22,2–59,3)	37,2 (22,8–51,7)
Other/Not known	-	-	-

4.2.10. Time of injury

Table 12 summarises the proportion of reported match injuries by period of match for players, categorised as backs, forwards and all players, taking part in REC 2025.

The highest number of match injuries occurred during the 2nd half (67,4%), with the 3rd quarter (39,5%) being the most injury-prone period. This trend was observed in both backs and forwards, with 75,0% of injuries in backs and 63,0% in forwards happening in the 2nd half. The 3rd quarter accounted for the largest proportion of injuries in both groups (backs: 37,5%; forwards: 40,7%).

Table 12. Proportion of reported match injuries by time during match			
Measure	% (95% Confidence interval)		
	Backs	Forwards	All players
First half	**25,0 (3,8–46,2)**	**37,0 (18,8–55,3)**	**32,6 (18,6–46,6)**
First quarter	6,3 (0,0–18,1)	25,9 (9,4–42,5)	18,6 (7,0–30,2)
Second quarter	18,8 (0,0–37,9)	11,1 (0,0–23,0)	14,0 (3,6–24,3)
Second half	**75,0 (53,8–96,2)**	**63,0 (44,7–81,2)**	**67,4 (53,4–81,4)**
Third quarter	37,5 (13,8–61,2)	40,7 (22,2–59,3)	39,5 (24,9–54,1)
Fourth quarter	37,5 (13,8–61,2)	22,2 (6,5–37,9)	27,9 (14,5–41,3)

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