UNIVERSIDAD DE **MURCIA**

Epidemiología de lesiones

Asignatura: Readaptación deportiva y reentrenamiento físico-deportivo

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¿EPIDEMIOLOGÍA?

+
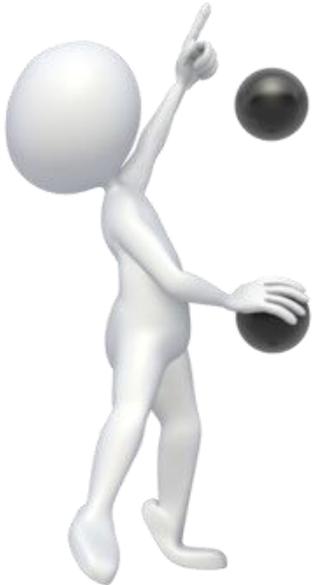
CONOCER…

- Cuál es el riesgo de que un deportista sufra una lesión durante la práctica de su deporte
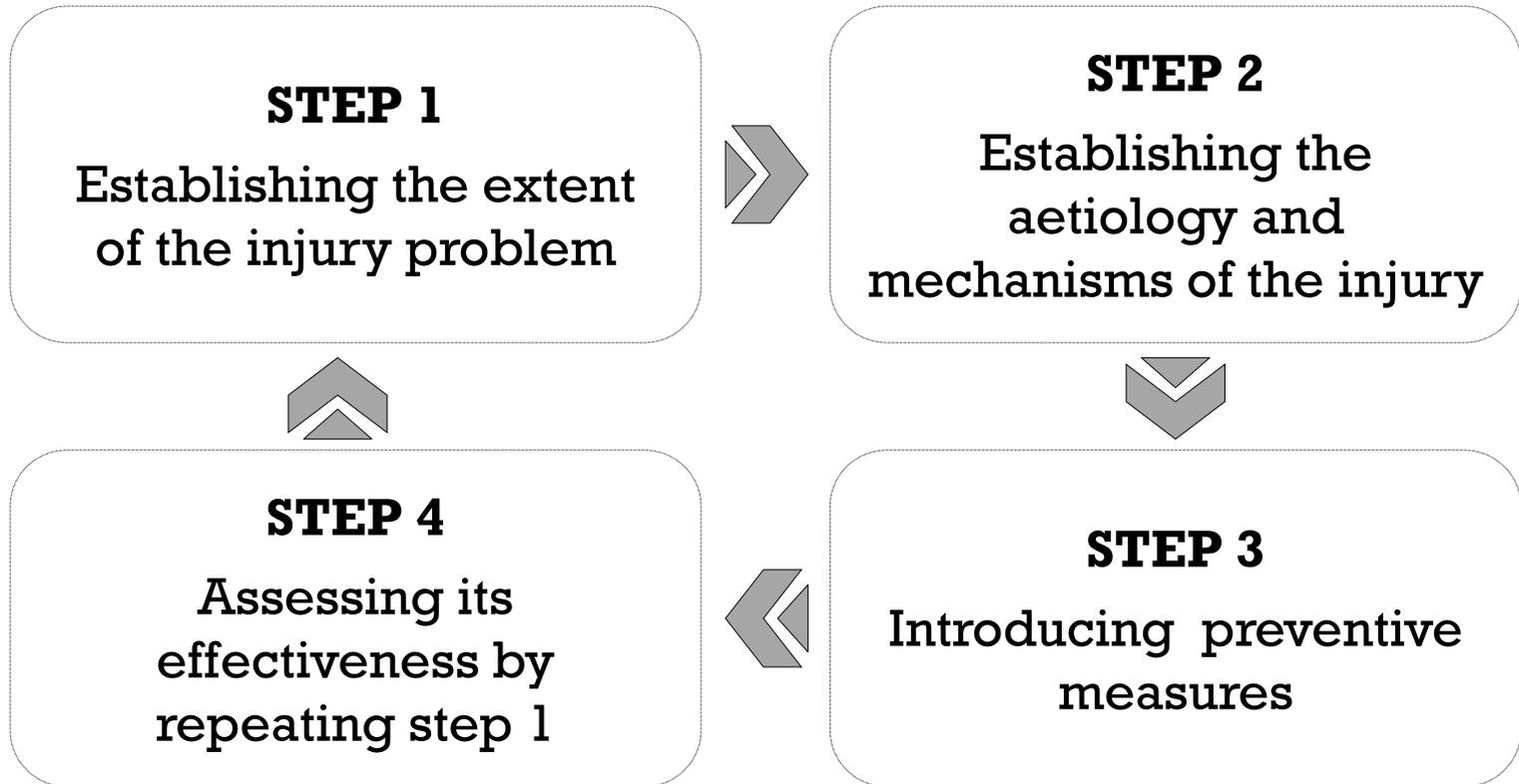
- Cuál es el patrón y la gravedad de las lesiones en un deporte
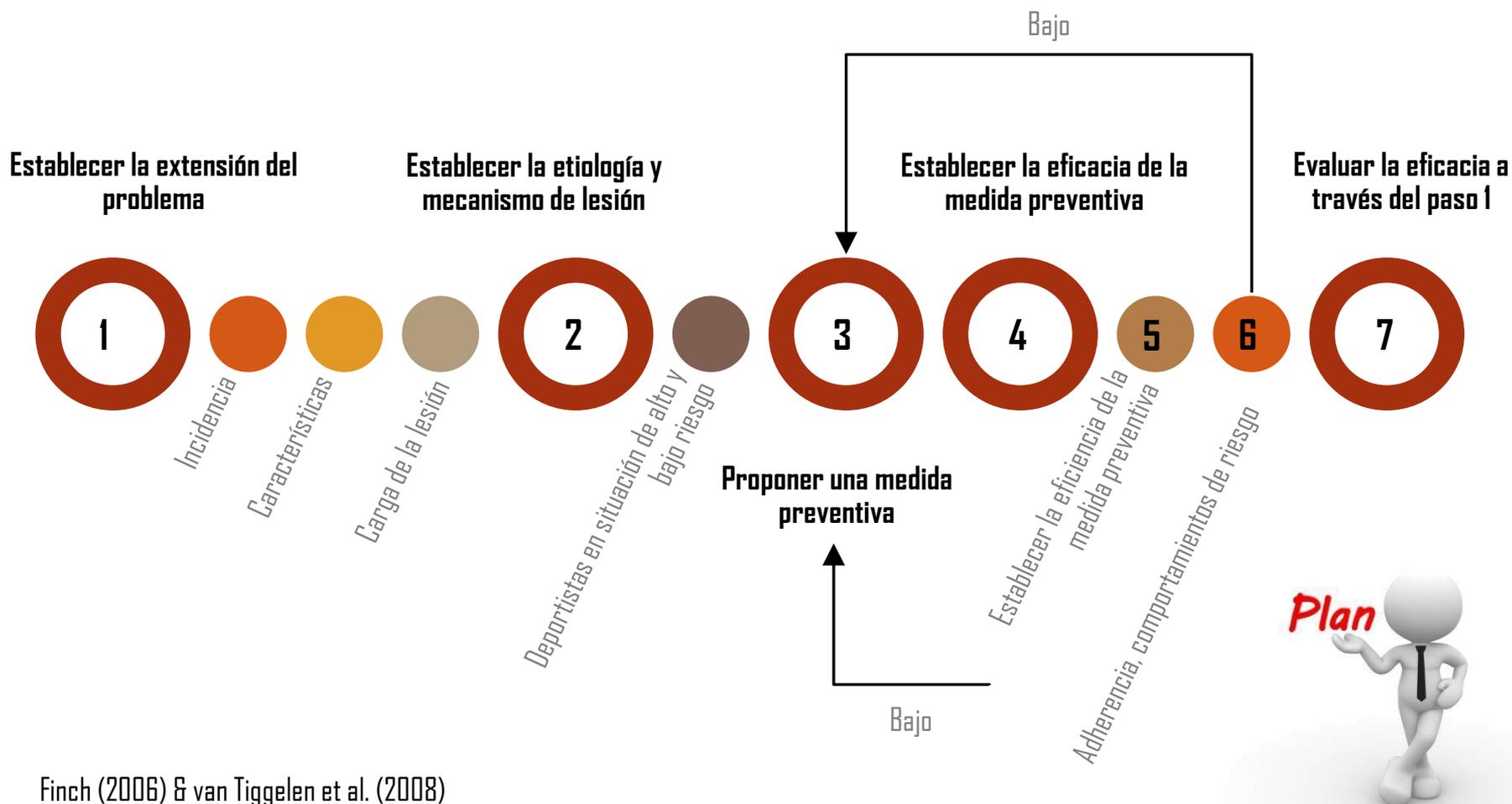
- Comparar ratios de lesión entre distintos deportes

PLAN PARA REDUCIR LAS LESIONES

STEP 1

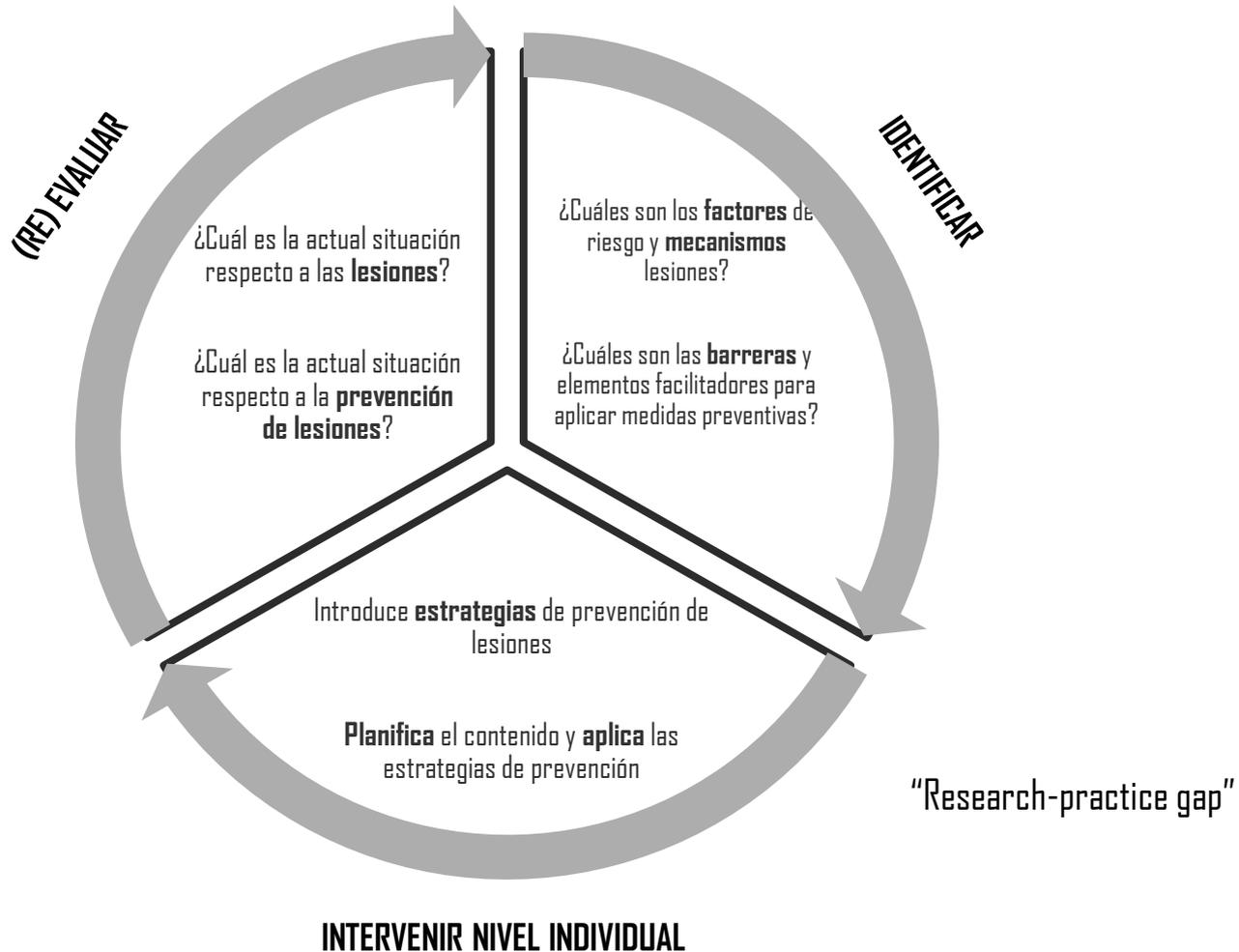Establishing the extent of the injury problem

STEP 2

Establishing the aetiology and mechanisms of the injury

STEP 4

Assessing its effectiveness by repeating step 1

STEP 3

Introducing preventive measures

Van Mechelen et al. (1992)

PLAN PARA REDUCIR LAS LESIONES

MODELO CLÁSICO IMPLEMENTADO (CONTEXTO)

Establecer la extensión del problema

Establecer la etiología y mecanismo de lesión

Establecer la eficacia de la medida preventiva

Evaluar la eficacia a través del paso 1

Bajo

1

Incidencia

Características

Carga de la lesión

2

Deportistas en situación de alto y bajo riesgo

3

Proponer una medida preventiva

4

5

Establecer la eficiencia de la medida preventiva

6

Adherencia, comportamientos de riesgo

7

Bajo

Plan

Finch (2006) & van Tiggelen et al. (2008)

PLAN PARA REDUCIR LAS LESIONES

The team-sport injury prevention (TIP) cycle

(RE) EVALUAR

¿Cuál es la actual situación respecto a las **lesiones**?

¿Cuál es la actual situación respecto a la **prevención de lesiones**?

IDENTIFICAR

¿Cuáles son los **factores** de riesgo y **mecanismos** lesiones?

¿Cuáles son las **barreras** y elementos facilitadores para aplicar medidas preventivas?

Introduce **estrategias** de prevención de lesiones

Planifica el contenido y **aplica** las estrategias de prevención

"Research-practice gap"

INTERVENIR NIVEL INDIVIDUAL

O'Brien et al. (2019)

Prevalencia

Incidencia

Exposición

Lesión

Burden

SHORT REPORT

Consensus statement on injury definitions and data collection procedures for studies of injuries in rugby union

Colin W Fuller, Michael G Molloy, Christian Bagate, Roald Bahr, John H M Brooks, Hilton Donson, Simon P T Kemp, Paul McCrory, Andrew S McIntosh, Willem H Meeuwisse, Kenneth L Quarrie, Martin Raftery, Preston Wiley

Consensus statement on epidemiological studies of medical conditions in tennis, April 2009

B M Pluim,[1] C W Fuller,[2] M E Batt,[3] L Chase,[4] B Hainline,[5] S Miller,[6] B Montalvan,[7] P Renström,[8] K A Stroia,[4] K Weber,[9] T O Wood[10]

Review

Consensus statement on injury definitions and data collection procedures in studies of football (soccer) injuries

C. W. Fuller[1], J. Ekstrand[2], A. Junge[3], T. E. Andersen[4], R. Bahr[4], J. Dvorak[3], M. Hägglund[2], P. McCrory[5], W. H. Meeuwisse[6]

Consensus statement

OPEN ACCESS

International consensus statement: methods for recording and reporting of epidemiological data on injuries and illnesses in golf

Andrew Murray [1,2] Astrid Junge,[3,4] Patrick Gordon Robinson,[5,6] Mario Bizzini,[7,8] Andre Bossert,[9] Benjamin Clarsen [10,11] Daniel Coughlan,[6,12] Corey Cunningham,[13,14] Tomas Drobny,[15,16] Francois Gazzano,[17] Lance Gill,[18,19] Roger Hawkes,[1,20] Tom Hospel,[21,22] Robert Neal,[23] Jonathan Lavelle,[24,25] Antony Scanlon,[26] Patrick Schamash,[27,28] Bruce Thomas,[29] Mike Voight,[19,30] Mark Wotherspoon,[31,32] Jiri Dvorak [15,33]

Consensus statement

International consensus statement on injury surveillance in cricket: a 2016 update

John W Orchard,[1,2] Craig Ranson,[3] Benita Olivier,[4] Mandeep Dhillon,[5] Janine Gray,[6,7] Ben Langley,[8] Akshai Mansingh,[9] Isabel S Moore,[3] Ian Murphy,[10] Jon Patricios,[11,12] Thiagarajan Alwar,[13] Christopher J Clark,[14] Brett Harrop,[15] Hussain I Khan,[16] Alex Kountouris,[2] Mairi Macphail,[17] Stephen Mount,[18] Anesu Mupotaringa,[19] David Newman,[8] Kieran O'Reilly,[20] Nicholas Peirce,[8,21] Sohail Saleem,[16] Dayle Shackel,[10] Richard Stretch,[22] Caroline F Finch[23]

Consensus Statement

International Olympic Committee Consensus Statement

Methods for Recording and Reporting of Epidemiological Data on Injury and Illness in Sports 2020 (Including the STROBE Extension for Sports Injury and Illness Surveillance (STROBE-SIIS))
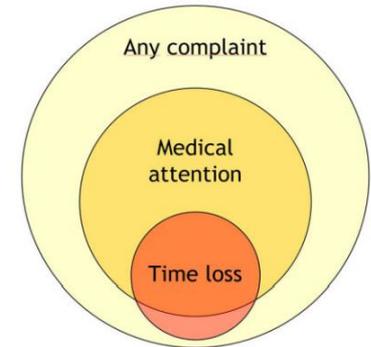
International Olympic Committee Injury and Illness Epidemiology Consensus Group*†

DEFINICIÓN DE LESIÓN
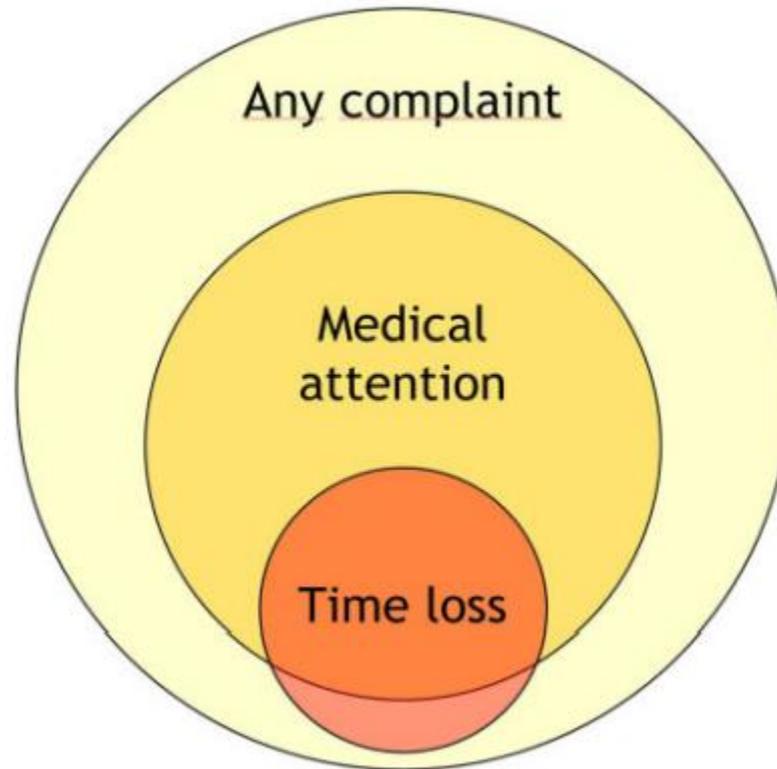
"Daño tisular u otra alteración de la función física normal debido a la participación en el deporte, que resulta de una transferencia rápida o repetitiva de energía cinética"

DEFINICIÓN DE LESIÓN

Any complaint

Medical attention

Time loss

01 Una jugadora de hockey sufre una sobrecarga en los isquiosurales durante la sesión de entrenamiento del lunes y vuelve a entrenar con normalidad el lunes de la semana siguiente tras recuperación con el fisio.

02 Un jugador de voleibol universitario informa de una lesión tras terminar un partido, se trata con el fisioterapeuta y vuelve a competir en otro partido más tarde el mismo día.

03 Un atleta sufre una lesión el domingo, una contusión en el muslo, puede entrenar el lunes y el martes, pero no puede entrenar el miércoles y regresa el domingo.

¿CÓMO CUANTIFICAMOS / EXPRESAMOS EL RIESGO?
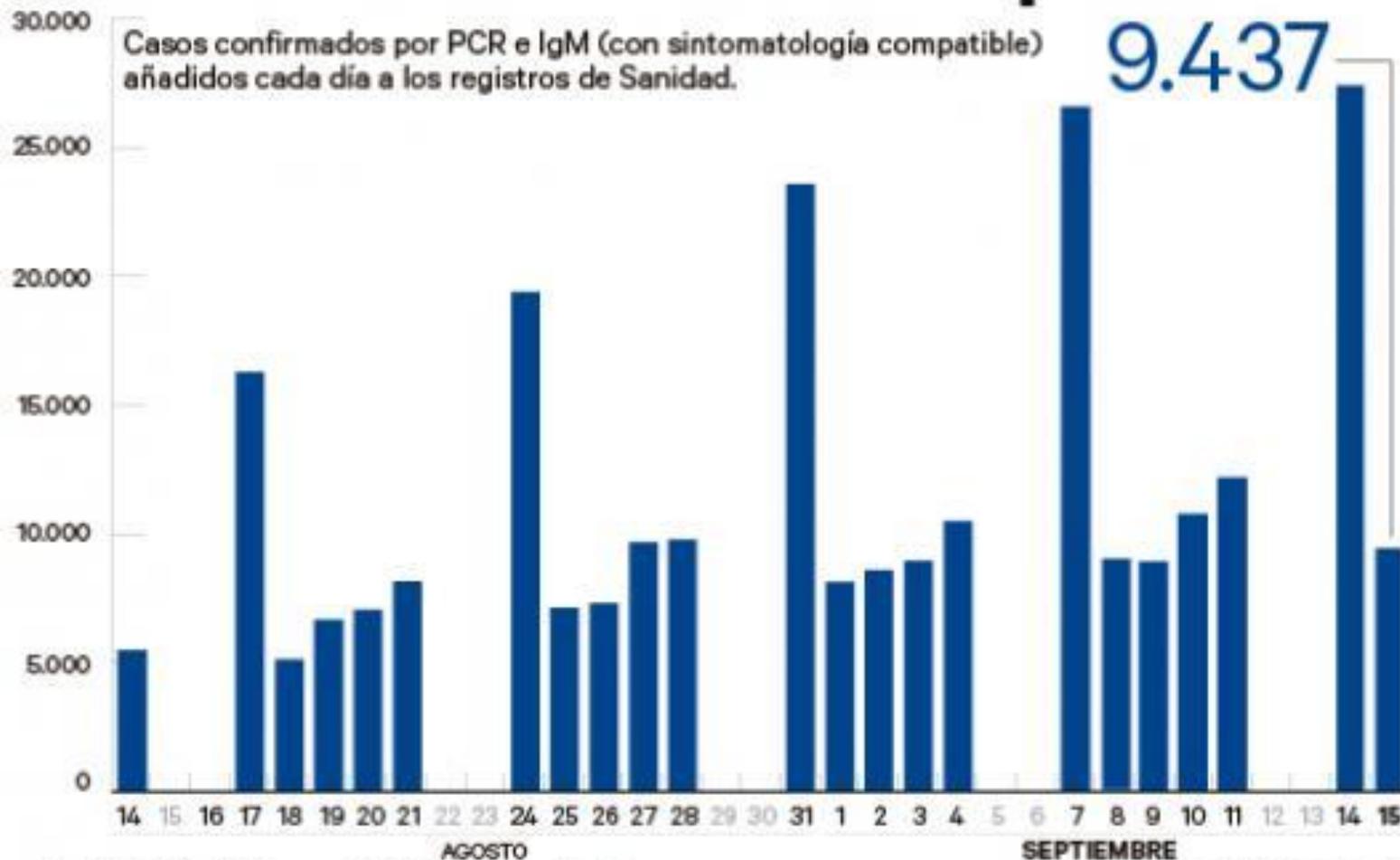
+ INCIDENCIA vs PREVALENCIA

¿Sabemos cuándo se produjo la lesión?

Point-of-care test

SARS-CoV-2
- 10% to 15%
- 5% to <10%
- 3% to <5%
- <3%

Pollán et al. (2020)

Casos confirmados al día en España

20 minutos

Casos confirmados por PCR e IgM (con sintomatología compatible)
añadidos cada día a los registros de Sanidad.

9.437

AGOSTO: 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SEPTIEMBRE: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

+ PREVALENCIA

Prevalencia = Número de casos (atletas lesionados) existentes / total de la población en riesgo en un momento dado

$$\frac{3}{23}$$
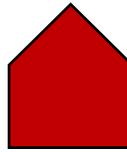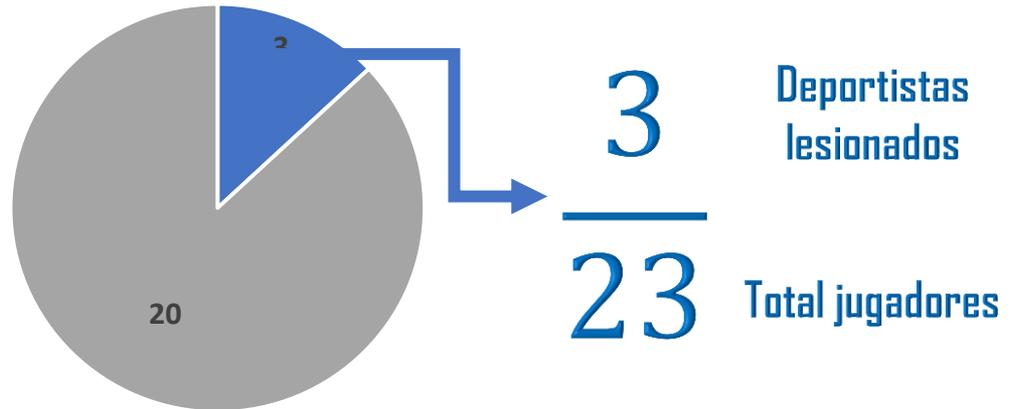
Deportistas lesionados

Total jugadores

Sep Oct Nov Dic Ene Feb Mar

PREVALENCIA

Lian et al. (2005); Müller et al., (2017); Trompeter et al. (2021)
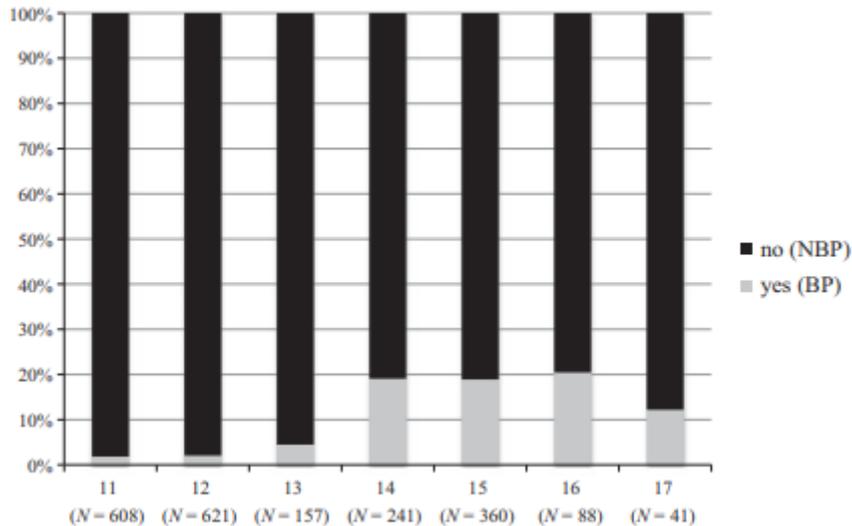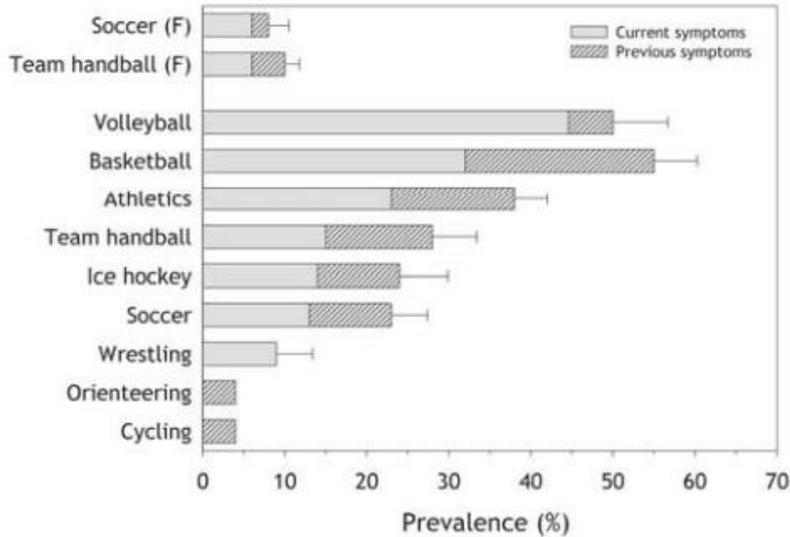
3.5.2 One-Year Prevalence

One-year prevalence of back pain was investigated in nine studies [26–31, 44, 51, 52], which all reported a prevalence of low back pain ranging from 24 to 66%. One study [30] reported rates of thoracic-spine pain and neck pain of 20 and 21%, respectively.

3.5.3 Point Prevalence

Eight studies [29–32, 34, 45, 48, 53] referred to the point prevalence of pain, usually defined as pain at the time of examination or during the last 7 days, in different areas of the back. The lower back was the most commonly occurring area of point prevalence. All eight studies collected point-prevalence data for the lower back ranging from 18 to 65%. Present pain in the thoracic spine (6%) and cervical spine (4%) was reported by one study [30].

+ INCIDENCIA

Incidencia = número de nuevas lesiones / número total de exposiciones durante un periodo de tiempo

$$\frac{3}{2156}$$

Nuevas lesiones
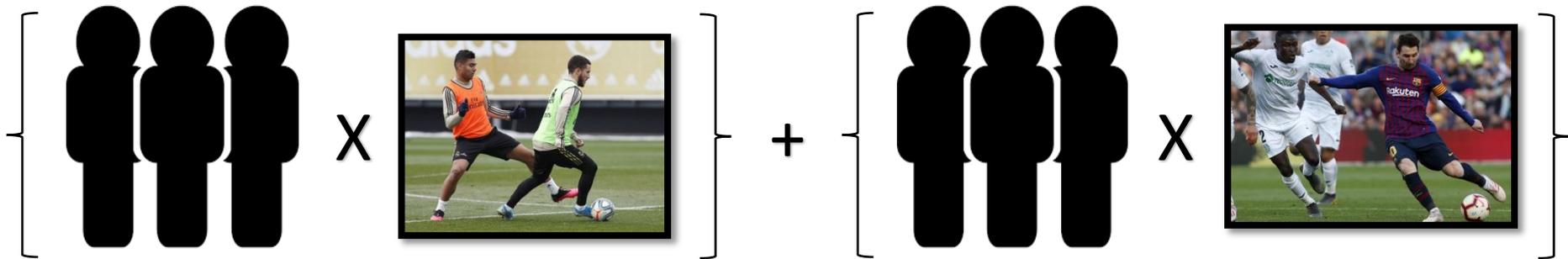
Total exposiciones

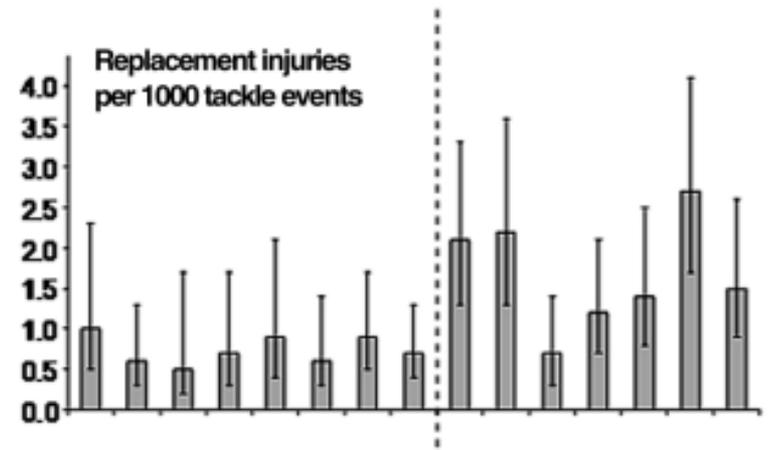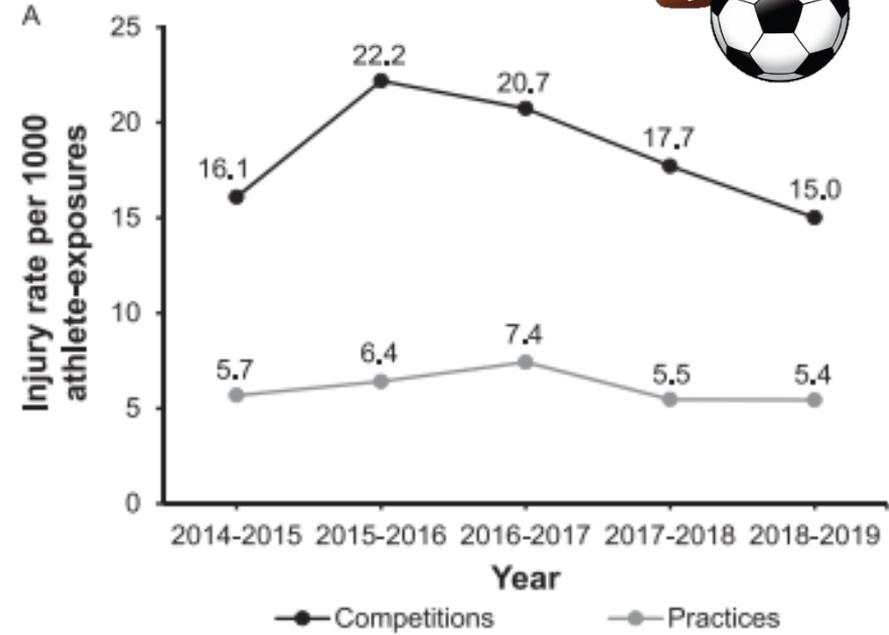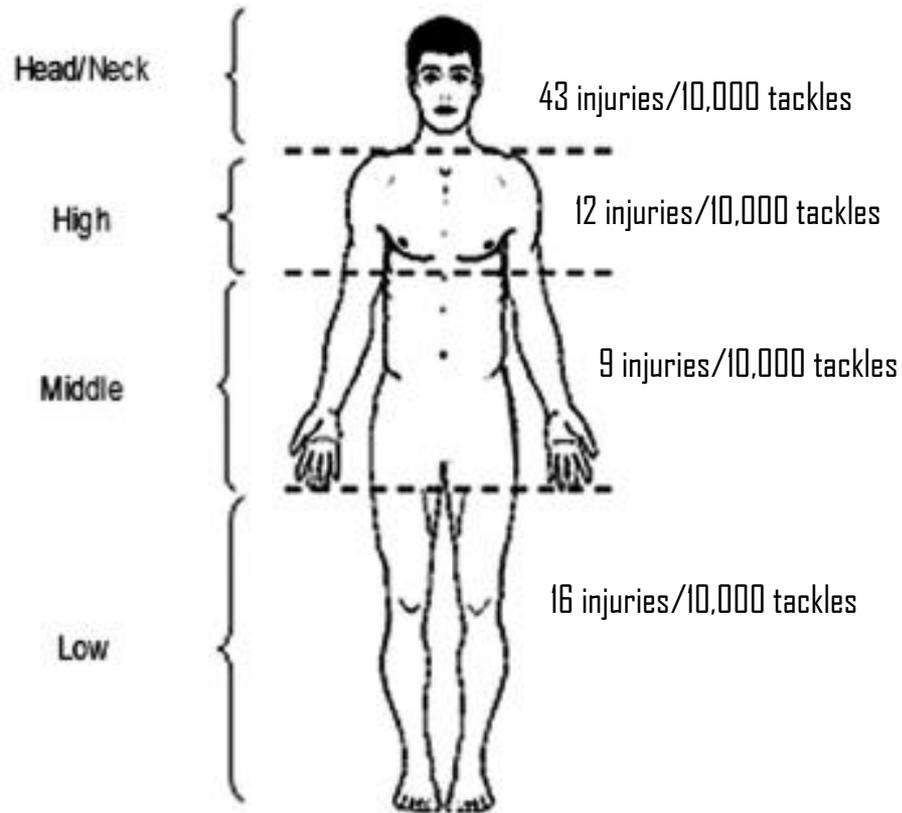SEPTIEMBRE - JUNIO

+ EXPOSICIONES

Exposición al deporte (Athlete Exposures [Aes]) = N° de exposiciones a entrenamientos y partidos por el número total de participantes en cada sesión

Exposición a una acción = N° de entradas para robar un balón, número de saltos, etc.

EXPOSICIONES

Head/Neck — 43 injuries/10,000 tackles

High — 12 injuries/10,000 tackles

Middle — 9 injuries/10,000 tackles

Low — 16 injuries/10,000 tackles

A

Injury rate per 1000 athlete-exposures

Competitions: 16.1 (2014-2015), 22.2 (2015-2016), 20.7 (2016-2017), 17.7 (2017-2018), 15.0 (2018-2019)

Practices: 5.7 (2014-2015), 6.4 (2015-2016), 7.4 (2016-2017), 5.5 (2017-2018), 5.4 (2018-2019)

Year

— Competitions   — Practices

Replacement injuries per 1000 tackle events

EXPOSICIONES

Horas de exposición = Horas de entrenamiento y partido

$$\left[\text{👤👤👤} \times \text{🖼️} \right] + \left[\text{👤👤👤} \times \text{🖼️} \right]$$
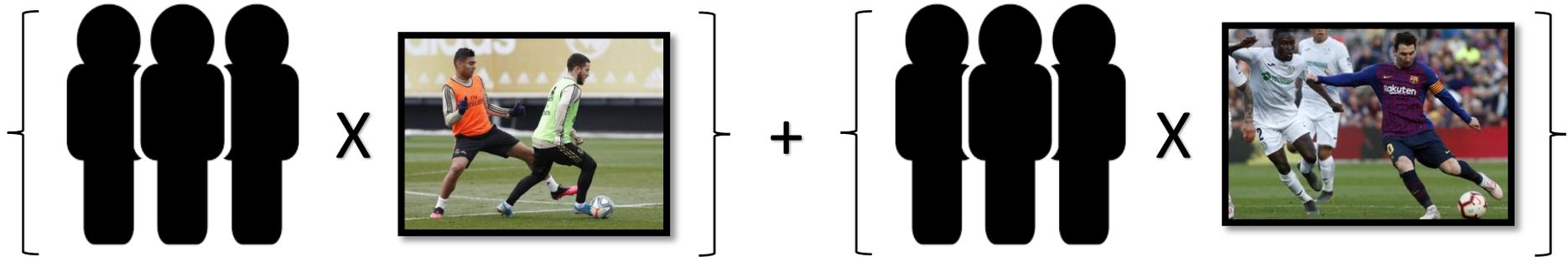
Horas de exposición por jugador = N° de horas de entrenamiento y partido por el número total de participantes en cada sesión

EXPOSICIONES

Cálculo de las horas de exposición
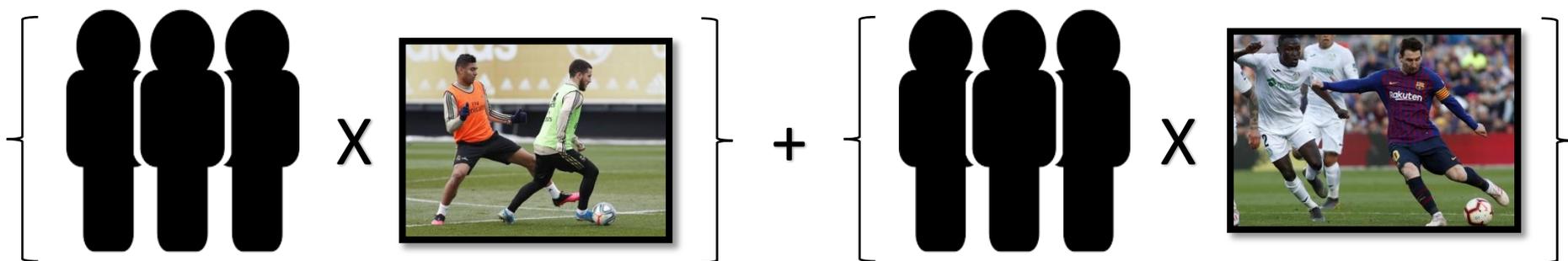
∑ min entrenamiento de cada participante   ∑ min competición de cada participante
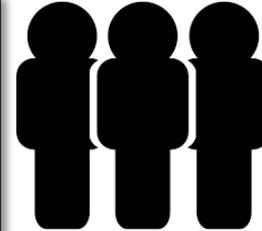
SEPTIEMBRE - JUNIO

X min = X horas

EXPOSICIONES

Estimación de las horas de exposición cuando no hemos registrado los minutos de exposición a entrenos y partidos
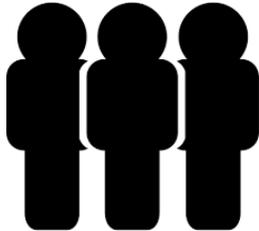
∑ entrenamientos X nº jugadores del equipo X duración estándar entrenamiento (en horas)

∑ partidos X 11 jugadores X duración estándar partido (en horas)

SEPTIEMBRE - JUNIO

INCIDENCIA DE LESIONES

HOMBRES

Total

8

Partido

36

Entrenamiento

4

MUJERES

Total

6

Partido

19

Entrenamiento

4

López-Valenciano et al. (2020 y 2021)

INCIDENCIA DE LESIONES

FÚTBOL ADOLESCENTE

- **Incidencia total** es de 5,7 lesiones por cada 1000 horas de exposición (95%IC = 4,5 hasta 6,9)

- Incidencia de lesiones en **entrenamiento** de 2,7 lesiones por 1000 horas de exposición (95%IC = 1,8 hasta 3,3)

- Incidencia de lesiones en **partido** de 14,4 lesiones por cada 1000 horas de exposición (95%IC = 11 hasta 17,8).

Robles-Palazón et al. (2021)

INCIDENCIA DE LESIONES

FÚTBOL ADOLESCENTE

- **Incidencia total** es de 6,8 lesiones por cada 1000 horas de exposición (95%IC = 5 hasta 8,5)

- Incidencia de lesiones en **entrenamiento** de 2,6 lesiones por 1000 horas de exposición (95%IC = 1,2 hasta 4,1)

- Incidencia de lesiones en **partido** de 14,9 lesiones por cada 1000 horas de exposición (95%IC = 9,7 hasta 20,2).

Robles-Palazón et al. (2021)

+ PREVALENCIA vs INCIDENCIA

PREVALENCIA
¿Cuántos (deportistas)…?
Proporción
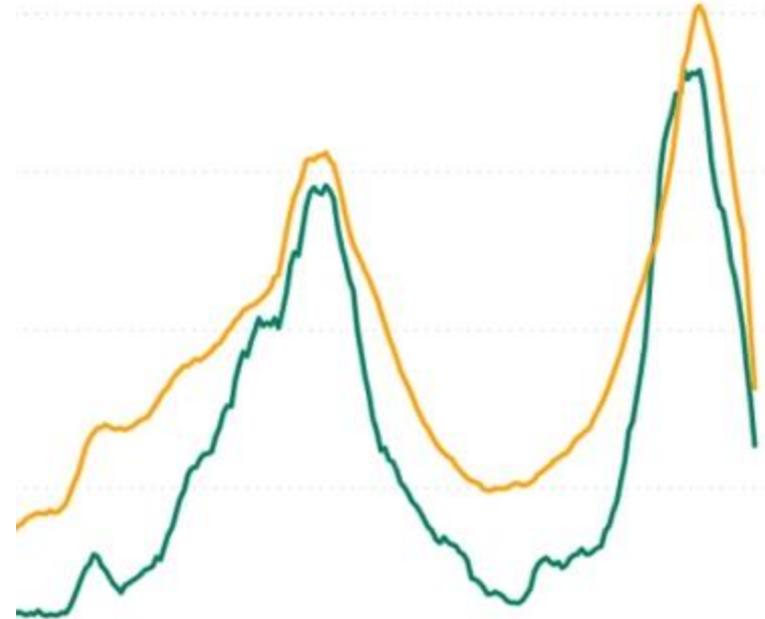
INCIDENCIA
¿Con qué frecuencia (se producen nuevos casos)…?
Índice (rate)

"Note that prevalence is calculated based on the number of athletes with a health problem, while incidence refers to the number of new health problems"

RELACIÓN INCIDENCIA-PREVALENCIA

Incidence
(new cases)

Prevalence increases as
incident cases are added

Prevalence decreases as
cases die or recover

Population
at risk

Prevalence
(existing cases)

Noordzij et al., (2010)
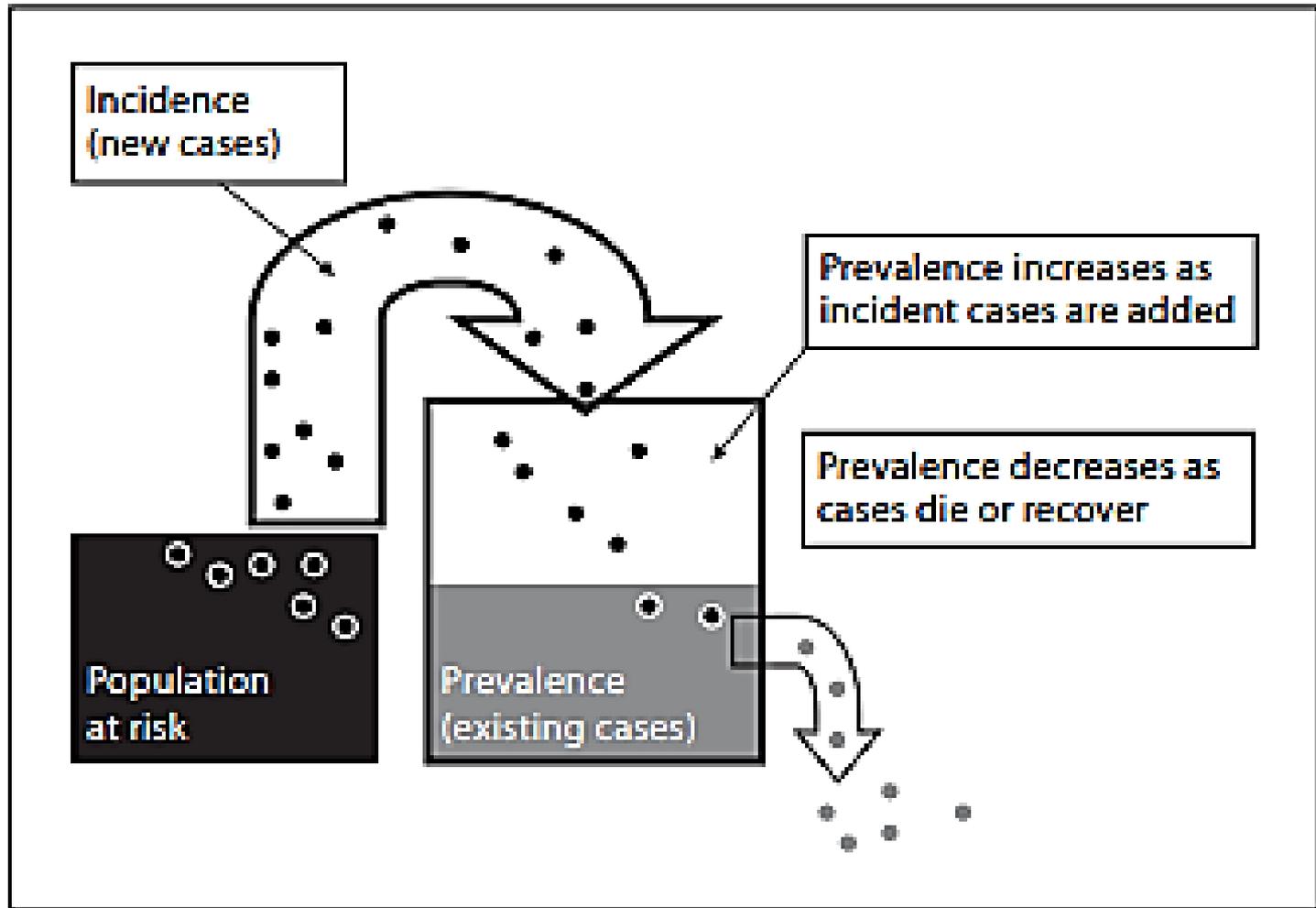
TAREA 1

Calcula la incidencia para un equipo de 20 jugadores que ha sufrido 10 lesiones en entrenamiento y 7 lesiones en competición a lo largo de una temporada de fútbol (39 semanas). Tenga en cuenta que el equipo entrena en sesiones de 1h30min / 3 días por semana, y disputa 30 partidos por temporada.

Completa la siguiente tabla			
	Lesiones temporada	Horas de exposición temporada	Incidencia (lesiones cada 1000 horas)
Entrenamiento			
Competición			

SEVERIDAD

Tiempo de baja (Time loss)	Consecuencias autoreportadas
Alcance clínico	Coste social

SEVERIDAD

Ligera	0 días
Leve	1-7 días
Moderada	8-28 días
Severa	> 28 días

"Número de días que pasan desde la fecha de la lesión hasta el día en el que el jugador vuelve a entrenar con su equipo y está disponible para su convocatoria en los partidos"

¿LESIONES MÁS FRECUENTES O LESIONES MÁS SEVERAS?

+

BURDEN

Injury burden cada 1000 horas de exposición = (∑ días de baja por lesión / ∑ horas de exposición de cada participante) X 1000
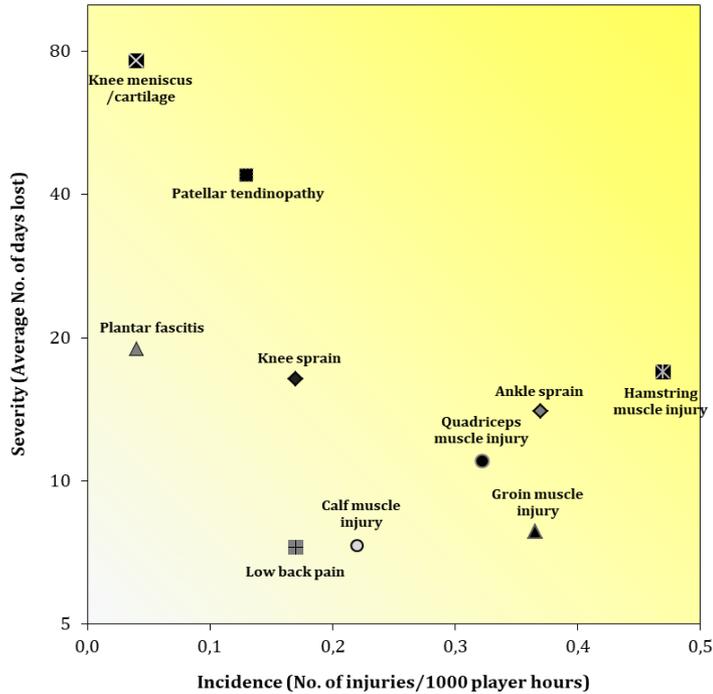
$$\frac{44}{5000}$$

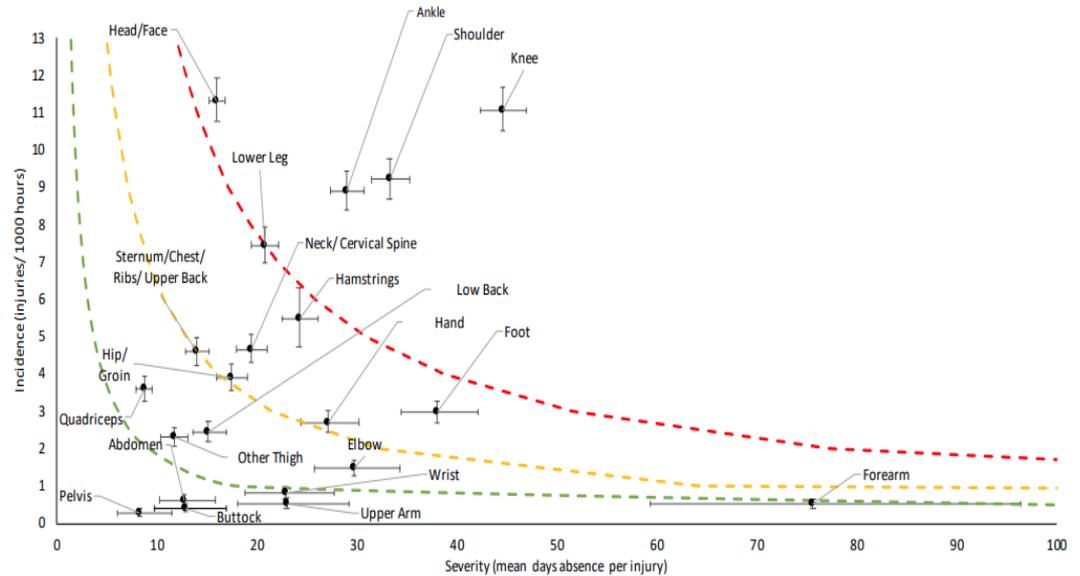Días de ausencia

Total horas de exposición

BURDEN

¿En qué tipos de lesión debemos centrarnos?

Robles-Palazón et al. (2021)

West et al. (2021)

+ BURDEN

¿Cuándo es el riesgo de lesión mayor?
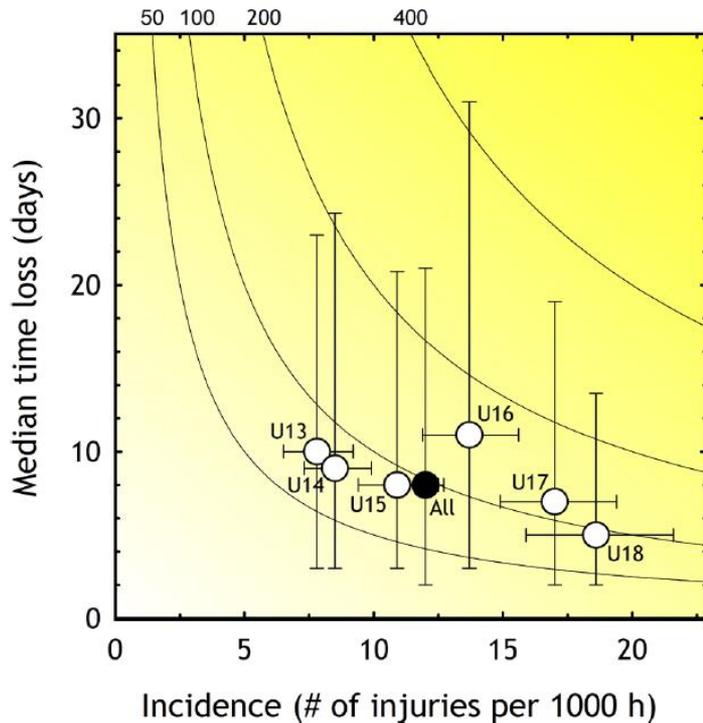
Wik et al. (2020)
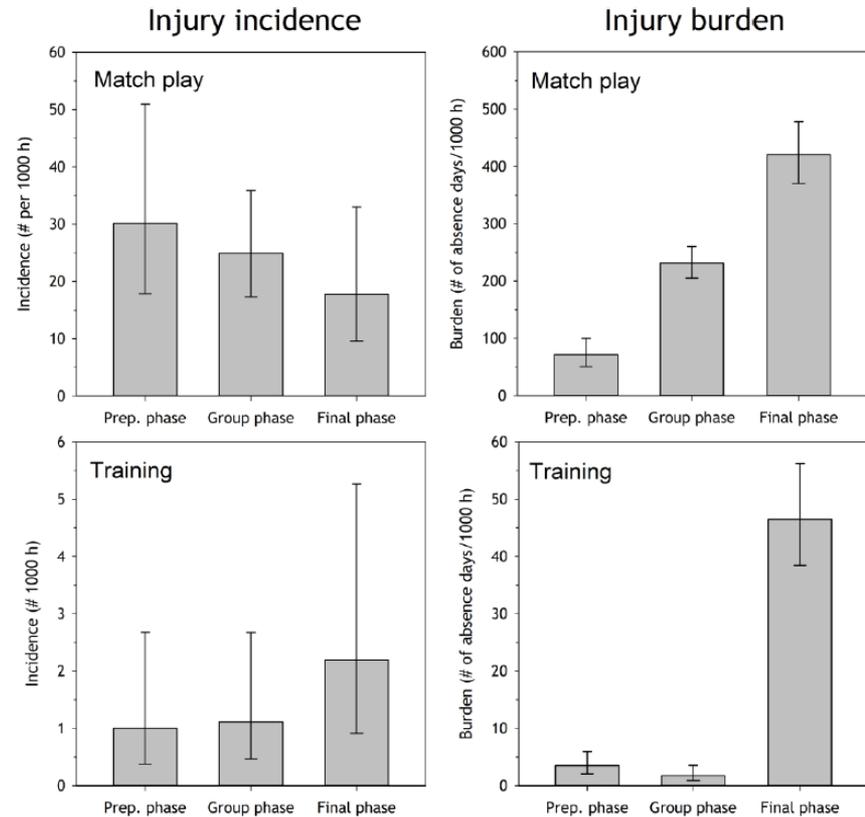
Bahr et al. (2018)

+ DISPONIBILIDAD

Disponibilidad de jugadores (player availability) = Σ oportunidades de jugar (= total n° de partidos × total jugadores de la plantilla) $-$ Σ n° ausencias a causa de lesiones.

PLAYER AVAILABILITY
Target >90%

Match Availability

98%
96% — LEAGUE
94%
92%
90% — LEAGUE
88% — LEAGUE   LEAGUE
86%
84%
82%
80%
78%
76%

01/02 02/03 03/04 04/05 05/06 06/07 07/08 08/09 09/10 10/11 11/12 12/13 13/14 14/15 15/16

■ Team X   ■— All Teams

UEFA published a study showing the players' availability of the UEFA Champion League's teams

24 7
365

+ TAREA 2

Calcula el injury burden para un equipo que ha sufrido 6 lesiones en entrenamiento y 3 lesiones en competición a lo largo de una temporada de fútbol (39 semanas). Tenga en cuenta que el equipo entrena en sesiones de 1h30min / 3 días por semana, y disputa 30 partidos por temporada.

Descripción de lesiones

LESIÓN	DÍAS DE AUSENCIA
Entrenamiento	
Rotura fibrilar 1/3 distal bíceps femoral derecho	18
Osgood Schlatter bilateral	14
Posible afectación intrasustancial del LCA rodilla derecha (Rmn)	15
Esguince grado I-II tobillo derecho con afectación sindesmosis	17
Rotura fibrilar recto anterior del cuádriceps derecho tercio medio superior	30
Esguince grado I ligamento lateral interno rodilla izquierda	18
Competición	
Rotura fibrilar músculo poplíteo izquierdo	24
Fascitis/talalgia pie derecho	20
Contusión vasto interno izquierdo	4

Completa la siguiente tabla

	Días de baja	Horas de exposición temporada	Injury burden (días de ausencia por cada 1000 horas)
Entrenamiento			
Competición			

Injuries affect team performance negatively in professional football: an 11-year follow-up of the UEFA Champions League injury study

Martin Hägglund,[1,2] Markus Waldén,[2,3] Henrik Magnusson,[1,2] Karolina Kristenson,[2,3] Håkan Bengtsson,[2] Jan Ekstrand[2,3]

[1]Division of Physiotherapy, Department of Medical and Health Sciences, Linköping University, Linköping, Sweden
[2]Football Research Group, Linköping University, Linköping, Sweden
[3]Division of Community Medicine, Department of Medical and Health Sciences, Linköping University, Linköping, Sweden

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Martin Hägglund, Division of Physiotherapy, Department of Medical and Health Sciences, Linköping University, Linköping 581 83, Sweden; martin.hagglund@liu.se

ABSTRACT

Background The influence of injuries on team performance in football has only been scarcely investigated.

Aim To study the association between injury rates and team performance in the domestic league play, and in European cups, in male professional football.

Methods 24 football teams from nine European countries were followed prospectively for 11 seasons (2001–2012), including 155 team-seasons. Individual training and match exposure and time-loss injuries were registered. To analyse the effect of injury rates on performance, a Generalised Estimating Equation was used to fit a linear regression on team-level data. Each team's season injury rate and performance were evaluated using its own preceding season data for comparison in the analyses.

Results 7792 injuries were reported during 1 026 104 exposure hours. The total injury incidence was 7.7 injuries/1000 h, injury burden 130 injury days lost/1000 h and player match availability 86%. Lower injury burden (p=0.011) and higher match availability (p=0.031) were associated with higher final league ranking. Similarly, lower injury incidence (p=0.035), lower injury burden (p<0.001) and higher match availability (p<0.001) were associated with increased points per league match. Finally, lower injury burden (p=0.043) and higher match availability (p=0.048) were associated with an increase in the Union of European Football Association (UEFA) Season Club Coefficient, reflecting success in the UEFA Champions League or Europa League.

Conclusions Injuries had a significant influence on performance in the league play and in European cups in male professional football. The findings stress the importance of injury prevention to increase a team's chances of success.

In the women's European Championship in 2005, teams that were eliminated in the group stage of the tournament had a higher match injury incidence than teams that advanced to the semifinals, while no such association was found in the men's tournament 2004 or in the men's under-19 tournament in 2005.[6] No difference in total injury incidence between teams that were eliminated in the group stage and those that qualified for the final stage of the tournament was reported in the previously mentioned study on 12 European Championships.[5]

In club level football, three studies have correlated injury figures with team performance in the league play. In one study including 17 teams in the Icelandic top two male divisions during one season, a relationship, although non-significant (p=0.092), between the number of injury days per team and the final league ranking was found, indicating that teams with fewer injury days had a better chance of success.[7] In another study on a French professional team followed over 15 seasons, no correlation between the team's final league ranking and total injury incidence in a season was observed.[8] Finally, a study on the Qatari professional league reported strong correlations between injury incidence and a high league ranking, more games won, more goals scored, greater goal difference and total number of points in a season.[9]

Despite some contradictory findings, studies indicate that injuries may have an impact on a team's performance. To the authors' knowledge, the association between injury rates and team performance in the European cups administered by the Union of European Football Associations (UEFA) has not been studied previously. Therefore, the objective of this study was to investigate the association between injury rates and performance in the domestic league play and in European cups in male

MECANISMO DE LESIÓN

TABLE 1
Examples: Assessment of Mode of Onset

Mechanism	Presentation	Example
Acute	Sudden onset	1. A sprinter pulls up suddenly in a race, stops, and hobbles a few steps in obvious pain with a hamstring injury.
Repetitive	Sudden onset	2. A gymnast experiences a frank tibial and fibular fracture on landing from a vault; computed tomography imaging reveals pre-existing morphological changes consistent with bone stress, that is, a stress fracture.
Repetitive	Gradual onset	3. A swimmer experiences a gradual increase in shoulder pain over the course of a season; diagnosed as rotator cuff tendinopathy on magnetic resonance imaging.
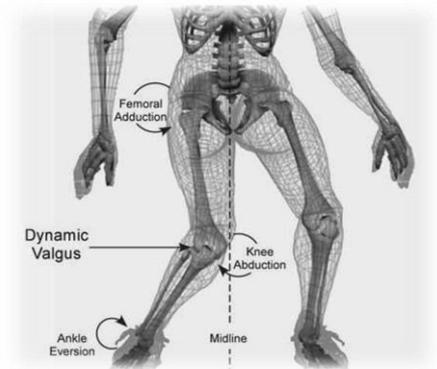
+ CONTACTO vs NO CONTACTO

TABLE 2
Examples: Classification of Contact as a Mechanism for Sudden-Onset Injuries[a]

Injury	Type of Contact	Example
Noncontact		
None	No evidence of disruption or perturbation of the player's movement pattern	ACL tear in a basketball player landing with knee valgus/rotation after a jump, with no contact with other players
Contact		
Indirect	Through another athlete	ACL tear in a handball player landing out of balance after being pushed on her shoulder by an opponent while in the air
Indirect	Through an object	Downhill skier suffers a concussion from a crash after being knocked off balance, hitting the gate with his knee
Contact		
Direct	With another athlete	ACL tear in a football player from a direct tackle to the anterior aspect of the knee, forcing the knee into hyperextension
Direct	With an object	Volleyball player being hit in the face by a spiked ball, resulting in a concussion

LOCALIZACIÓN

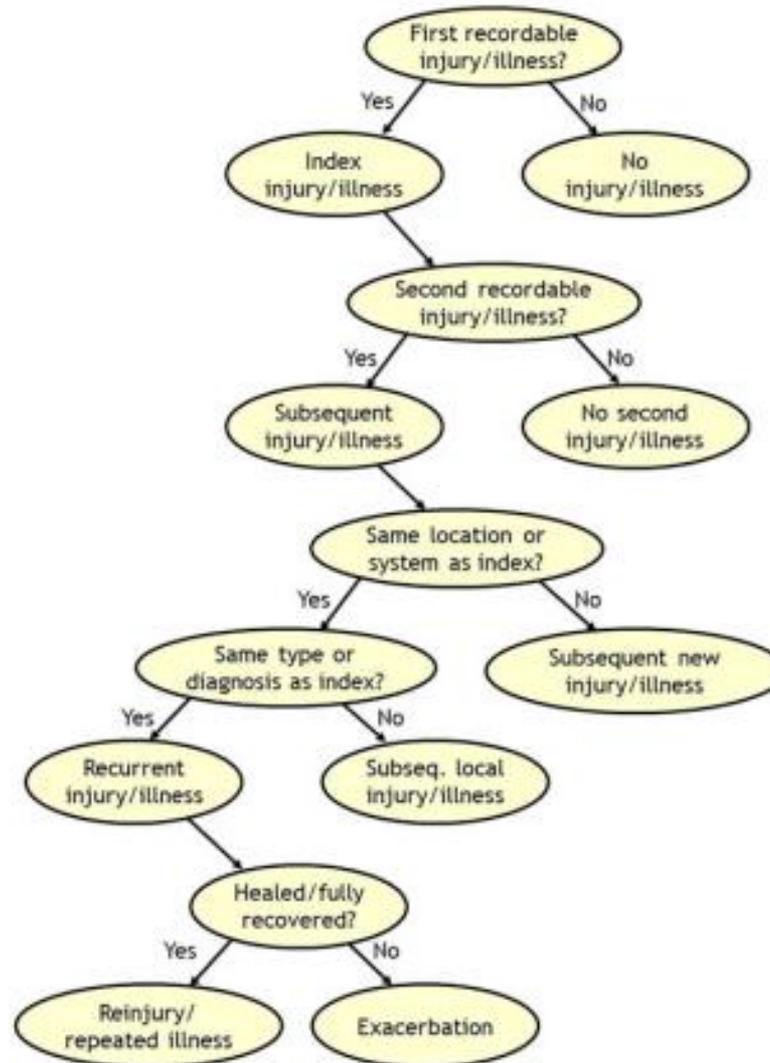| Cabeza y cuello	Cabeza/cara, cuello/columna cervical
Extremidades superiores	Hombro/clavícula, brazo, codo, antebrazo, muñeca, mano/dedos/pulgar
Tronco	Pecho/Esternón/costillas, espalda alta/columna torácica, espalda baja/lumbosacro, abdomen
Extremidades inferiores	Cadera/ingle, muslo, rodilla, pierna (parte inferior)/tendón de Aquiles, tobillo, pie/dedos

+ TIPO

Recommended Categories of Tissue and Pathology Types for Injuries[a]

Tissue/Pathology Type	OSIICS	SMDCS	Note
Muscle/tendon			
Muscle injury	M	10.07-10.09	Includes strain, tear, rupture, intramuscular tendon
Muscle contusion	H	10.24	
Muscle compartment syndrome	Y	10.36	
Tendinopathy	T	10.28-10.29	Includes paratenon, related bursa, fasciopathy, partial tear, tendon subluxation (all nonrupture), enthesopathy
Tendon rupture	R	10.09	Complete/full-thickness injury; partial tendon injuries considered to be tendinopathy
Nervous			
Brain/spinal cord injury	N	20.40	Includes concussion and all forms of brain injuries and spinal cord
Peripheral nerve injury	N	20.39, 20.41-20.42	Includes neuroma
Bone			
Fracture	F	30.13-30.16, 30.19	Traumatic, includes avulsion fracture, teeth
Bone stress injury	S	30.18, 30.32	Includes bone marrow edema, stress fracture, periostitis
Bone contusion	J	30.24	Acute bony traumatic injury without fracture; osteochondral injuries are considered "joint cartilage"
Avascular necrosis	E	30.35	
Physis injury	G	30.20	Includes apophysis
Cartilage/synovium/bursa			
Cartilage injury	C	40.17, 40.21, 40.37	Includes meniscal, labral, articular cartilage, osteochondral injuries
Arthritis	A	40.33-40.34	Posttraumatic osteoarthritis
Synovitis/capsulitis	Q	40.22, 40.34	Includes joint impingement
Bursitis	B	40.31	Includes calcific bursitis, traumatic bursitis
Ligament/joint capsule			
Joint sprain (ligament tear or acute instability episode)	L or D	50.01-50.11	Includes partial and complete tears plus injuries to nonspecific ligaments and joint capsule; includes joint dislocations/subluxations
Chronic instability	U	50.12	
Superficial tissues/skin			
Contusion (superficial)	V	60.24	Contusion, bruise, vascular damage
Laceration	K	60.25	
Abrasion	I	60.26-60.27	
Vessels (vascular trauma)	V	70.45	
Stump (stump injury)	W	91.44	In amputees
Internal organs (organ trauma)	O	80.46	Includes trauma to any organ (excluding concussions), drowning, relevant for all specialized organs not mentioned elsewhere (lungs, abdominal and pelvic organs, thyroid, breast)
Nonspecific (injury without tissue type specified)	P or Z	00.00 (also 00.23, 00.38, 00.42)	No specific tissue/pathology diagnosed

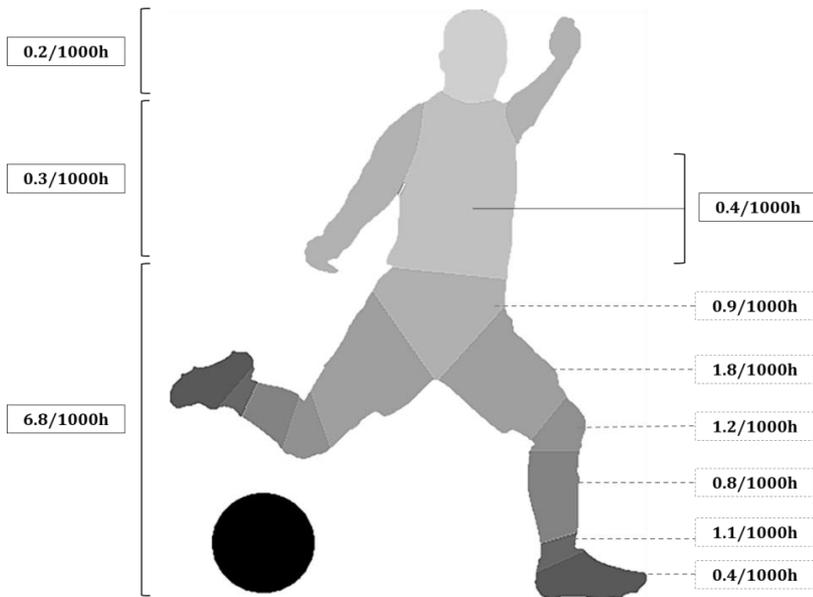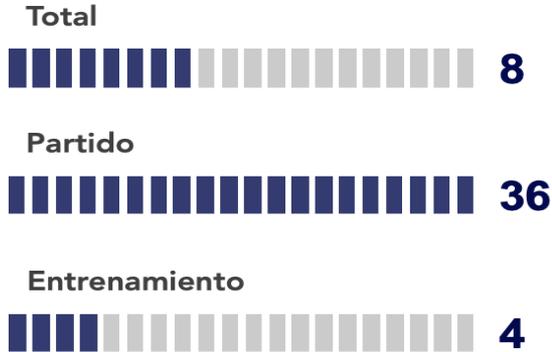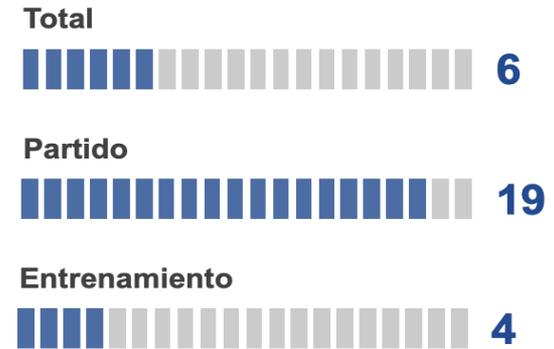| Body part	Injuries	Incidence rate		Median time loss		Burden	
Pathology Diagnosis	n	Injuries per 1000 hours	(95% CI)	Days	(25–75th percentile)	Time loss days per 1000 hours	(95% CI)
Head and neck	27	0.3	(0.2 to 0.4)	14	(7 to 18)	4	(4 to 5)
Concussion	20	0.2	(0.1 to 0.3)	16	(10 to 18)	3	(3 to 3)
Upper limb	97	1.0	(0.8 to 1.3)	16	(4 to 32)	24	(23 to 25)
Fracture	42	0.5	(0.3 to 0.6)	32	(19 to 56)	17	(17 to 18)
Forearm fracture	20	0.2	(0.1 to 0.3)	32	(22 to 55)	8	(7 to 9)
Hand/finger fracture	18	0.2	(0.1 to 0.3)	27	(17 to 43)	6	(6 to 7)
Joint sprain	20	0.2	(0.1 to 0.3)	14	(4 to 20)	3	(3 to 4)
Contusion (superficial)	33	0.4	(0.2 to 0.5)	3	(1 to 9)	3	(3 to 3)
Trunk	62	0.7	(0.5 to 0.9)	10	(2 to 43)	18	(17 to 19)
Bone stress injury	20	0.2	(0.1 to 0.3)	56	(43 to 78)	13	(13 to 14)
Spondylolysis/-listhesis	13	0.1	(0.1 to 0.2)	69	(44 to 105)	10	(9 to 11)
Pars stress reaction	6	0.1	(0.0 to 0.1)	53	(48 to 57)	3	(3 to 4)
Hip/groin	159	1.7	(1.5 to 2.0)	10	(5 to 20)	28	(27 to 29)
Physis injury	71	0.8	(0.6 to 1.0)	10	(6 to 17)	11	(10 to 11)
AIIS apophysitis	47	0.5	(0.4 to 0.7)	9	(5 to 15)	6	(5 to 6)
ASIS apophysitis	19	0.2	(0.1 to 0.3)	13	(6 to 22)	3	(3 to 4)
Bone stress injury	20	0.2	(0.1 to 0.3)	21	(11 to 37)	7	(7 to 8)
Pubic bone stress/apophysitis	19	0.2	(0.1 to 0.3)	20	(10 to 33)	5	(5 to 6)
Muscle injury	22	0.2	(0.1 to 0.4)	19	(8 to 23)	4	(4 to 5)
Iliopsoas strain/spasm	17	0.2	(0.1 to 0.3)	19	(12 to 22)	3	(3 to 4)
Non-specific pathology	23	0.2	(0.2 to 0.4)	3	(2 to 9)	2	(2 to 3)
Thigh	274	3.0	(2.6 to 3.3)	6	(2 to 16)	38	(36 to 39)
Muscle injury	179	1.9	(1.7 to 2.2)	9	(4 to 21)	29	(28 to 30)
Hamstring strain/spasm	92	1.0	(0.8 to 1.2)	9	(3 to 21)	15	(15 to 16)
Adductor strain/spasm	57	0.6	(0.5 to 0.8)	7	(3 to 15)	7	(6 to 7)
Quadriceps strain/spasm	30	0.3	(0.2 to 0.5)	16	(8 to 31)	7	(6 to 7)
Muscle contusion	40	0.4	(0.3 to 0.6)	3	(2 to 7)	4	(4 to 4)
Quadriceps contusion	37	0.4	(0.3 to 0.5)	3	(2 to 8)	4	(3 to 4)
Physis injury—Ischial apophysitis	6	0.1	(0.0 to 0.1)	18	(8 to 26)	1	(1 to 2)
Knee	145	1.6	(1.3 to 1.8)	8	(2 to 25)	71	(70 to 73)
Joint sprain	29	0.3	(0.2 to 0.4)	25	(17 to 167)	46	(45 to 48)
ACL complete tear	4	0.0	(0.0 to 0.1)	644	(551 to 737)	28	(27 to 29)
Patellar dislocation/subluxation	4	0.0	(0.0 to 0.1)	136	(106 to 170)	6	(6 to 7)
MCL sprain	13	0.1	(0.1 to 0.2)	17	(11 to 25)	5	(4 to 5)
Cartilage	7	0.1	(0.0 to 0.2)	47	(23 to 151)	9	(9 to 10)
Meniscal tear	6	0.1	(0.0 to 0.1)	71	(26 to 178)	9	(8 to 9)
Physis injury	34	0.4	(0.3 to 0.5)	4	(1 to 22)	6	(6 to 7)
Osgood-Schlatter's disease	33	0.4	(0.2 to 0.5)	5	(1 to 23)	6	(6 to 7)
Contusion (superficial)	35	0.4	(0.3 to 0.5)	3	(2 to 7)	2	(2 to 3)
Lower leg	100	1.1	(0.9 to 1.3)	4	(2 to 10)	14	(13 to 15)
Bone stress injury	20	0.2	(0.1 to 0.3)	21	(6 to 49)	8	(7 to 8)
Medial tibial stress syndrome	14	0.2	(0.1 to 0.3)	10	(6 to 39)	4	(4 to 5)
Lower leg stress fracture	4	0.0	(0.0 to 0.1)	54	(42 to 80)	3	(3 to 3)
Muscle injury	38	0.4	(0.3 to 0.6)	4	(1 to 9)	3	(2 to 3)
Ankle	158	1.7	(1.4 to 2.0)	11	(3 to 27)	39	(38 to 40)
Joint sprain	88	0.9	(0.8 to 1.2)	16	(5 to 36)	27	(26 to 28)

EXACERBACIÓN vs RECAÍDA

EPIDEMIOLOGÍA DE LESIONES EN EL DEPORTE

FÚTBOL PROFESIONAL

HOMBRES

Total
8

Partido
36

Entrenamiento
4

0.2/1000h

0.3/1000h

0.4/1000h

0.9/1000h

1.8/1000h

1.2/1000h

0.8/1000h

1.1/1000h

0.4/1000

6.8/1000h

MUJERES

Total
6

Partido
19

Entrenamiento
4

0.3/1000h

0.15/1000h

0.43/1000h

0.35/1000h

0.88/1000h

1.05/1000h

0.46/1000h

1.05/1000h

0.39/1000h

4.8/1000h

López-Valenciano et al. (2020 y 2021)

FÚTBOL PROFESIONAL
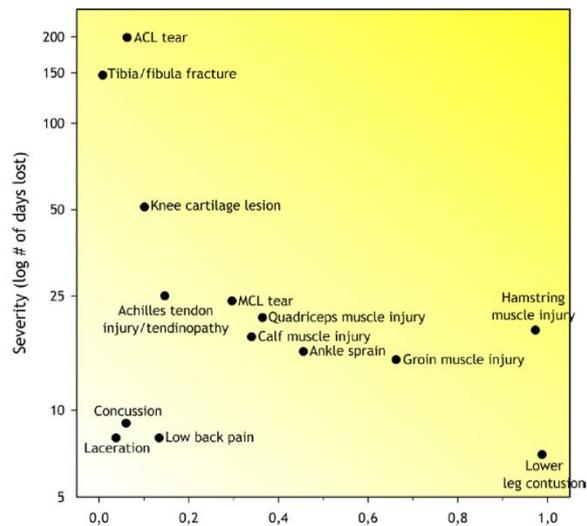
Quadriceps strains

Hamstring strains

Ankle sprains
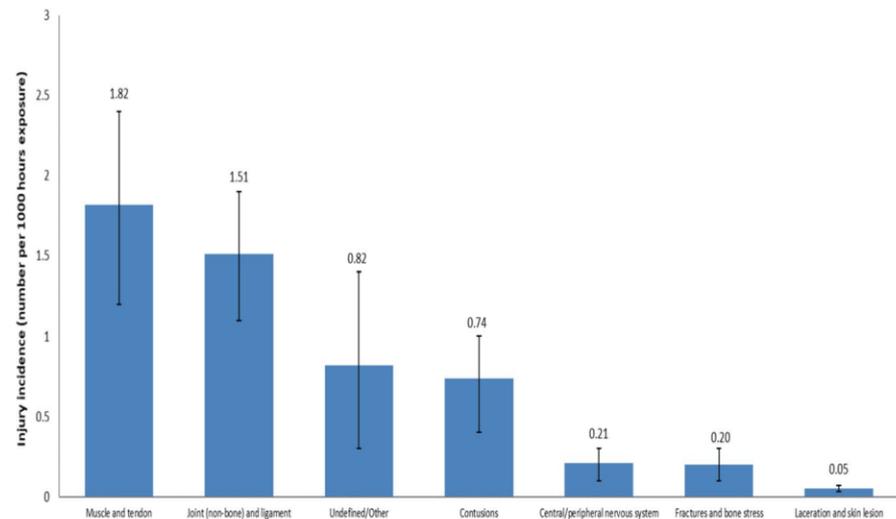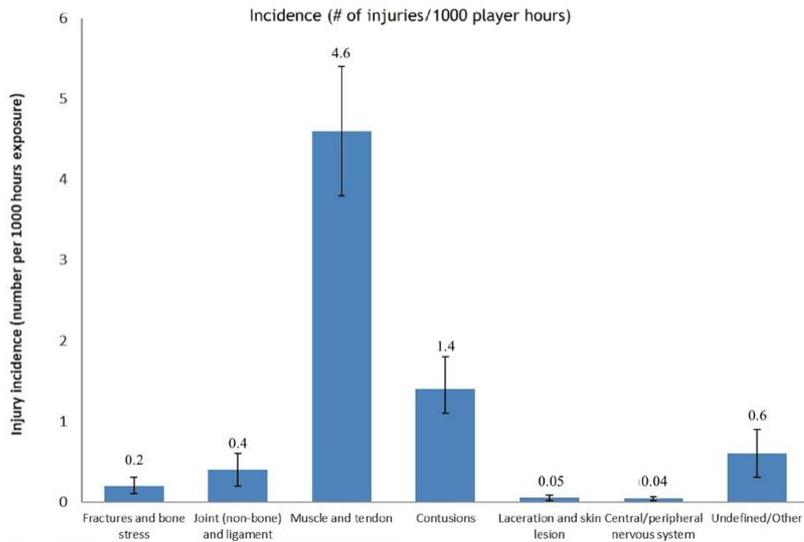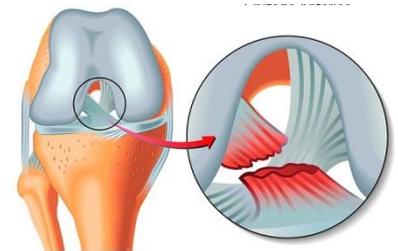
✚ FÚTBOL ADOLESCENTE

EPIDEMIOLOGY OF INJURIES IN MALE AND FEMALE YOUTH FOOTBALL PLAYERS: A SYSTEMATIC REVIEW AND META-ANALYSIS

STUDY DETAILS

43 Studies included
9674 Injuries
2214549 Hours of exposure
+35000 Different players

INJURY INCIDENCE

♂
2.8	14.4
TRAINING	MATCH

♀
2.6	15.0
TRAINING	MATCH

MAIN FINDINGS

I. Males tend to sustain predominantly muscle injuries to the thigh; females sustain joint and ligament injuries to the knee and ankle.

II. The incidence of injuries increases with advances in chronological age in males.

III. Elite male players present higher match injury incidence than sub-elite.

IV. The quality of evidence for females is low, and thus more research is needed to fully explore the injury profile in this sex.
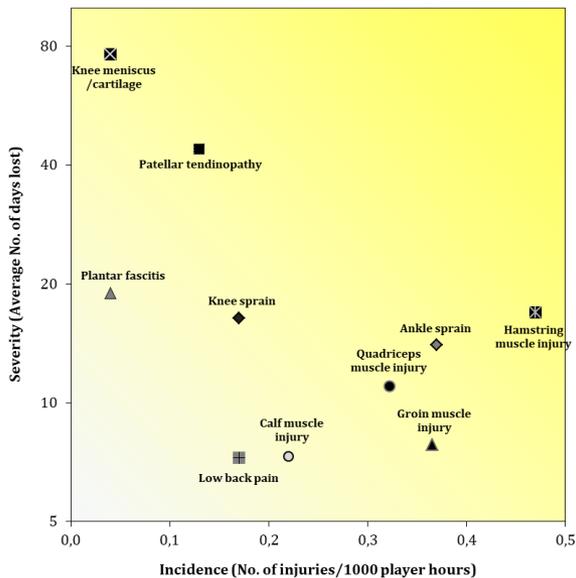
Robles-Palazón et al. (2021)
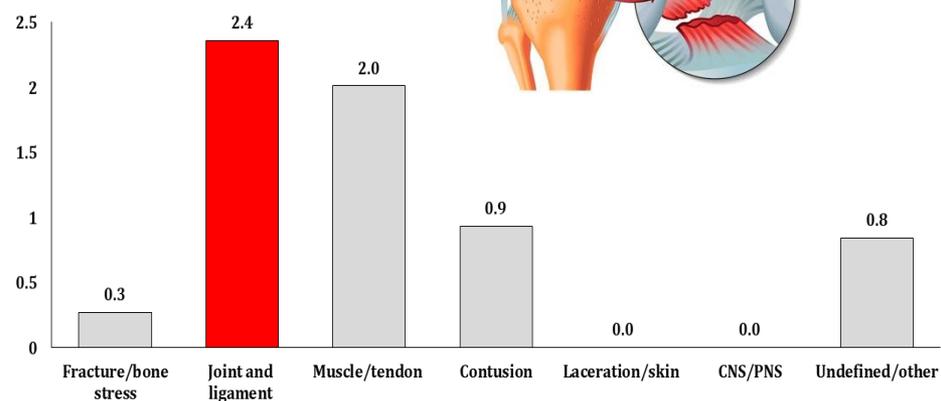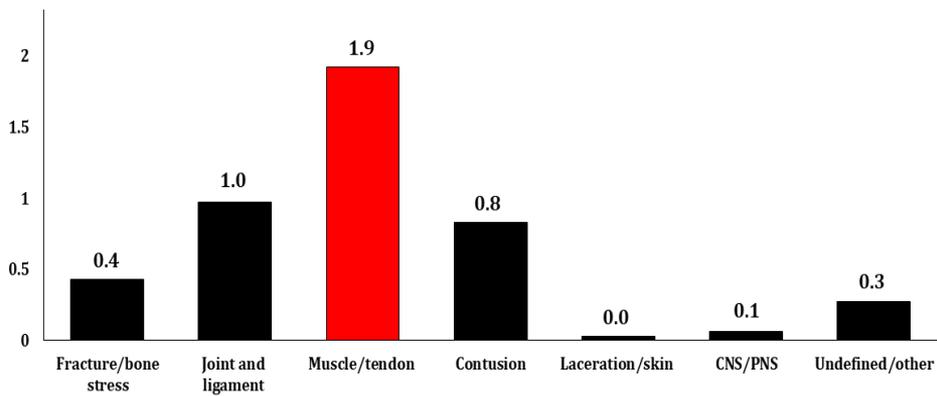
LOCATION

0.08	0.13
0.29	0.26
0.25	0.68
4.08	6.54

0.73	0.57
1.21	1.06
0.75	1.49
0.37	0.68
0.91	1.52
0.31	0.40

Values represent incidences (number of injuries per 1000 hours of football exposure)

SEVERITY

♂
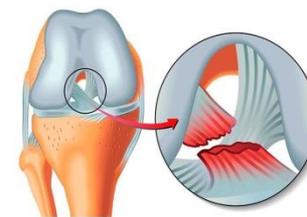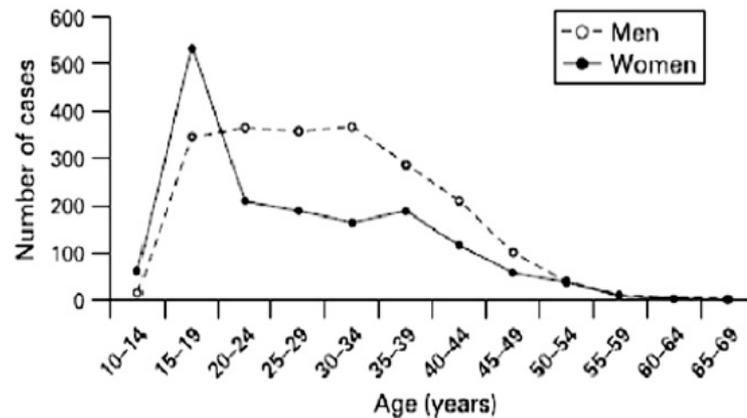| >28 | 0.8 |
8-28	1.7
4-7	1.1
1-3	1.9

♀
>28	1.3
8-28	1.5
4-7	0.8
1-3	3.6
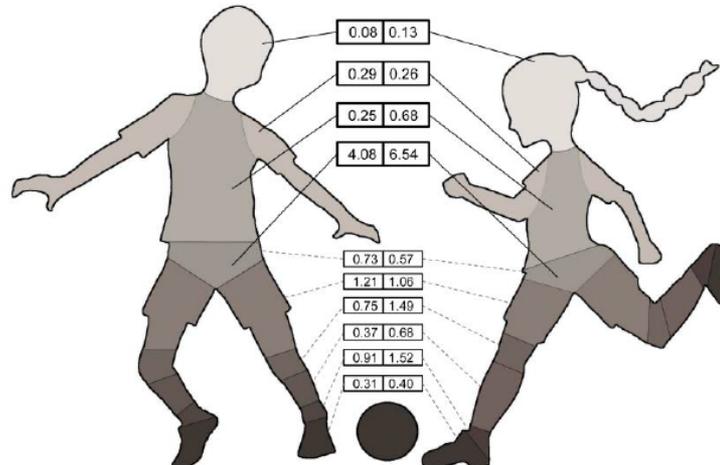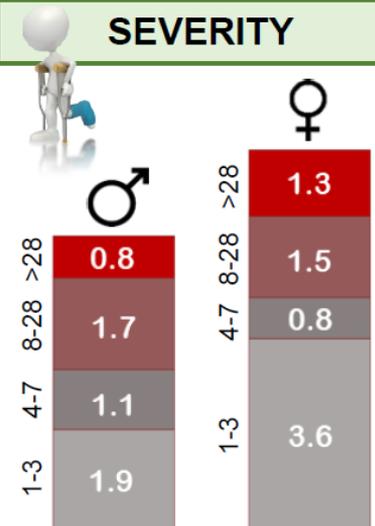
FÚTBOL ADOLESCENTE

CHICOS — CHICAS

FÚTBOL SALA

HOMBRES

Entrenamiento	¿?
Partido	44,9
Total	6,8

MUJERES

Entrenamiento	5,1
Partido	10,3
Total	5,3

Ruiz-Pérez et al. (2020)
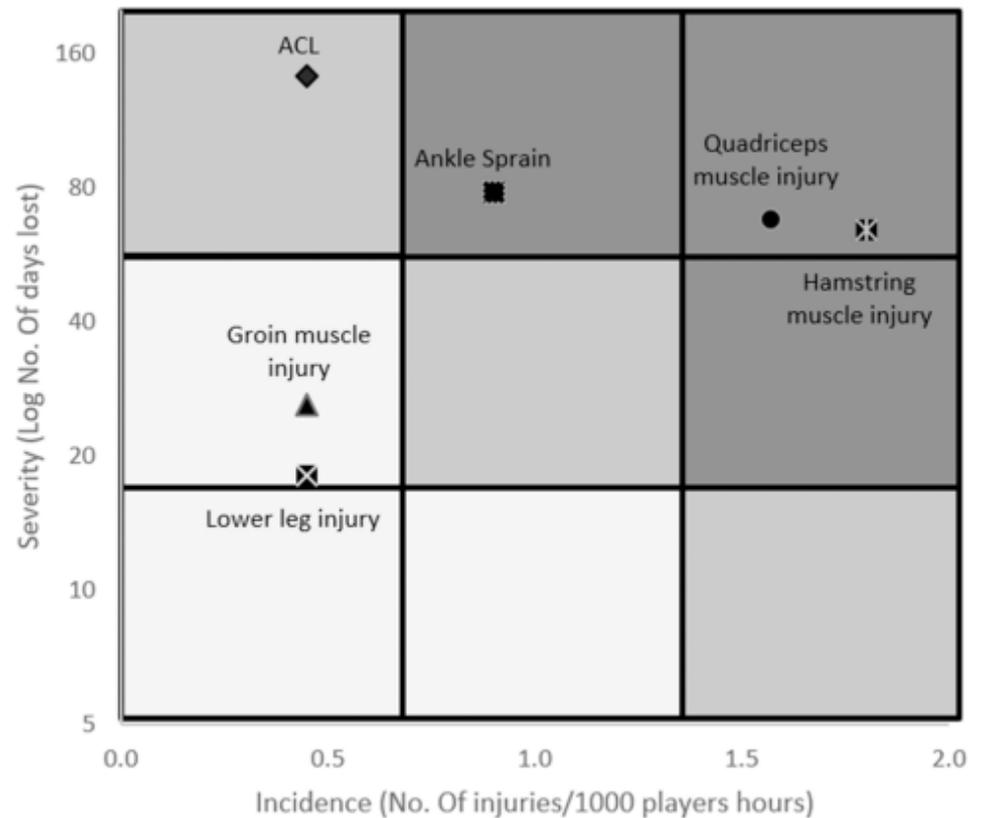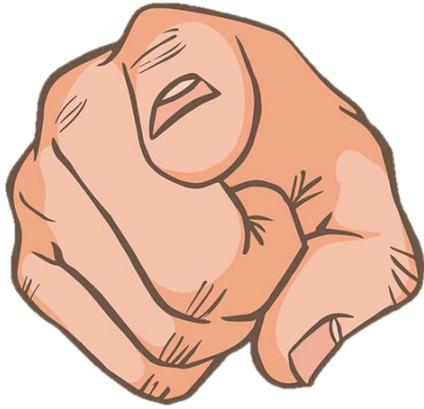
FÚTBOL SALA

Ruiz-Pérez et al. (2019)
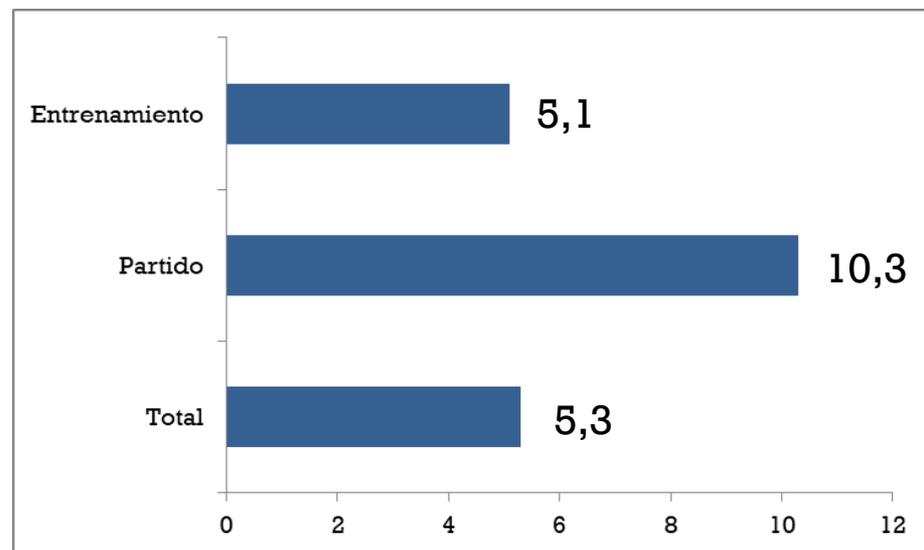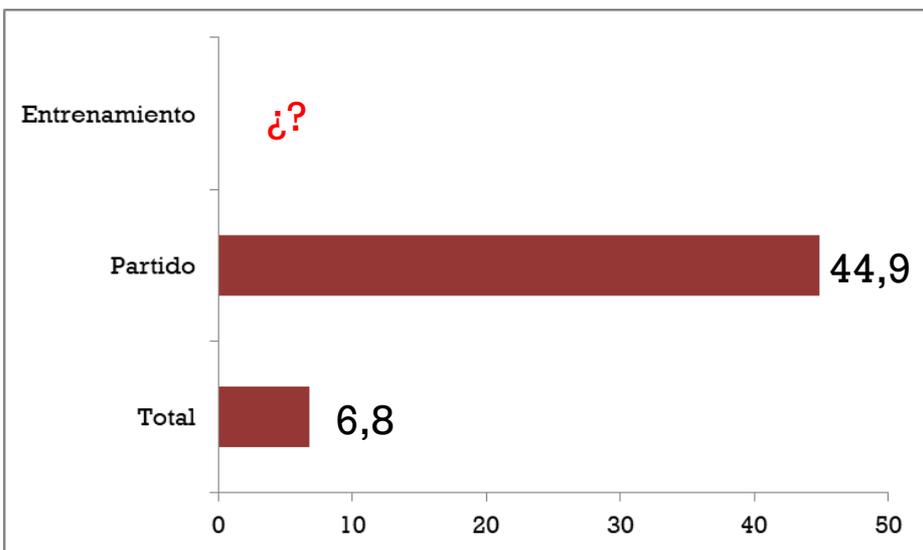
¿SOLO FÚTBOL?

TRABAJO BLOQUE II. INFOGRAFÍA

Diseño de una infografía que resuma información esencial sobre epidemiología, mecanismos y factores de riesgo de lesión para uno de los deportes estudiados en las asignaturas de Especialización Deportiva 1, 2, 3 y 4, pertenecientes a 4° curso del Grado en CAFD.

ESP 1. Atletismo, Balonmano (y Fútbol Sala –excluido–)

ESP 2. Baloncesto, Lucha Olímpica (y Fútbol –excluido–)

ESP 3. Piragüismo y Voleibol

ESP 4. Deportes de raqueta, Natación y Vela