



# Jan Ekstrand

## Injuries in Sport

- Impact Management of Players and the Role Communication Has on Preventing injuries





AUGUST 25 - BWF WORLD COACHING CONFERENCE 2023 COPENHAGEN

# Injuries in sport- The role coaches, management and communication have on preventing injuries

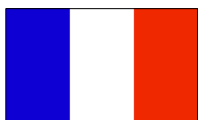
**Prof. Jan Ekstrand MD, PhD**

WE CARE ABOUT FOOTBALL

# UEFA male Elite Club Injury Study (ECIS) seasons 2001-2023



FC Bayern München  
RZ Leipzig  
Bayer Leverkusen  
Schalke 04  
BV Borussia



Paris St. Germain  
Olympique Lyonnais  
LOSC Lille  
Olympique Marseille  
AS Monaco



Juventus FC  
AS Roma  
AC Milan  
Inter  
SSC Napoli



Real Madrid FC  
FC Barcelona  
Atlético de Madrid  
Valencia CF  
Sevilla FC  
Atlético Bilbao  
Villareal



FC Porto  
SL Benfica  
Sporting Lisbon



RSC Anderlecht  
Club Brugge KV  
KRC Genk



PSV Eindhoven  
AFC AJAX



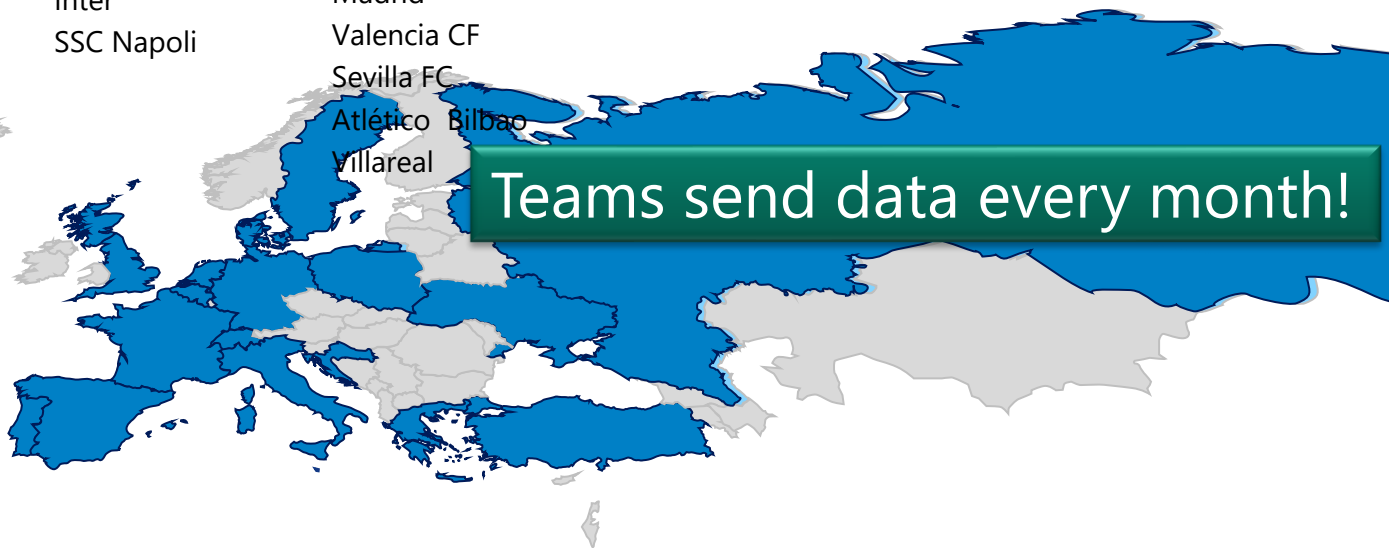
Zenit St Petersburg  
CSKA Moscow  
Lokomotiv Moskva



NK dynamo Zagreb



Manchester City FC  
Chelsea FC  
Arsenal FC  
Manchester United FC  
Tottenham Hotspur FC  
Liverpool FC  
Leicester City FC  
AFC Bournemouth  
Southampton FC



✓ **55 clubs**  
✓ **21 countries**



Ferencvaros TC



FC Copenhagen



Shakhtar Donetsk



FC Basel



Olympiacos FC



Galatasaray AS



FC Maribor



Malmö FF



Maccabi Tel-Aviv



Celtic FC



PFC Ludogorets

**25 000 injuries**



# UEFA Women's Elite Club Injury Study (WECIS) 2018-2023, 5 seasons



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Professional sport

# Coaches are key for injury prevention and performance



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The bottom line in elite level sport:

Winning matches and trophies  
= the **WHY** of sports at professional level





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# HOW to win matches and trophies?



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**To win matches and trophies, players need to be in good health and avoid injuries**





# Injuries are correlated to performance

Low injury rates associated with:

- Improved performance in the leagues
- Improved performance in international competitions



Hägglund M., Waldén M., Magnusson H., Bengtsson H., Kristenson K., Ekstrand J., Injuries affect team performance negatively in professional football: an 11-year follow-up of the UEFA Champions League injury study. *Br J Sports Med* 2013; 47(12): 738-742

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The key to win matches and trophies

**= player availability**

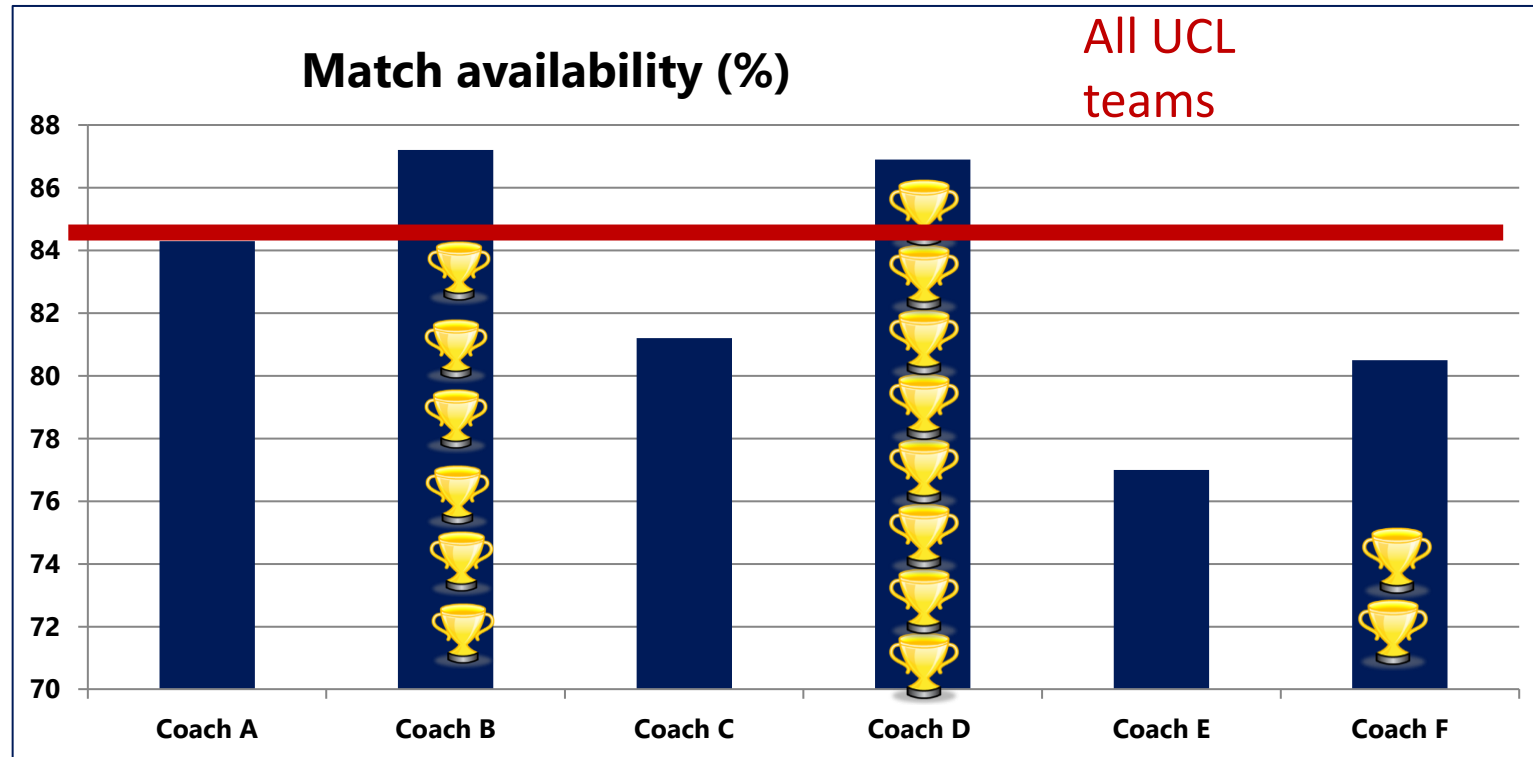
An injury means a notch in the player's development

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# UCL Team X followed for 14 seasons



League points/season:

-14

+10

-8

+10

-19

+3



= UEFA recognised trophies



Better availability = more trophies



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# HOW to avoid injuries?



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**Step 1** in injury prevention:  
injury study to evaluate the problem

**What** is the problem?

- Which injuries
  - How often do they occur
  - What are the consequences for the athletes and teams?
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# Consequences of injuries in elite level football

When can I play?

Original research



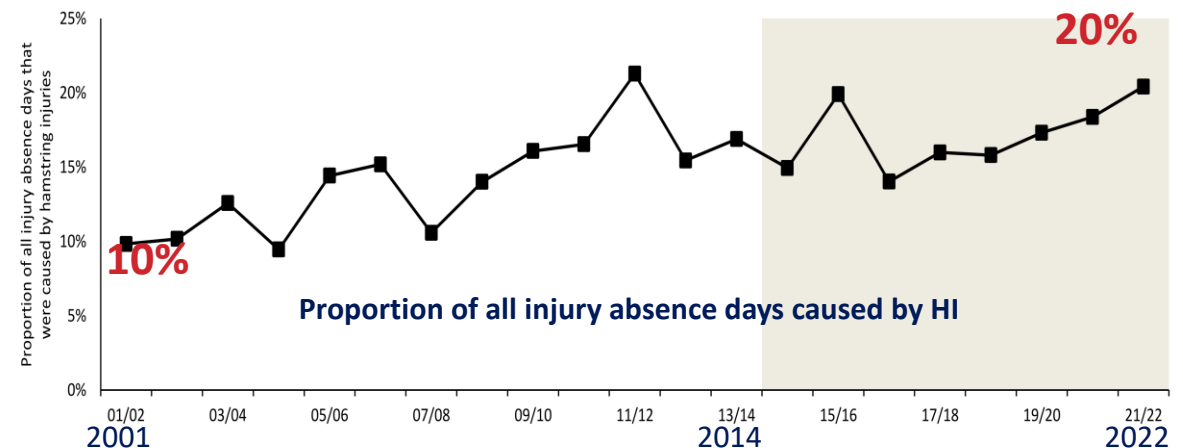
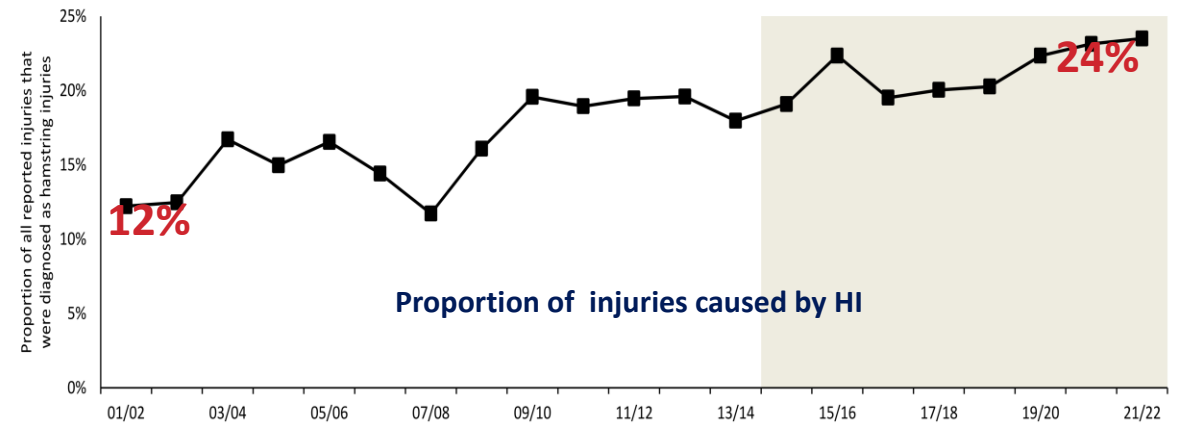
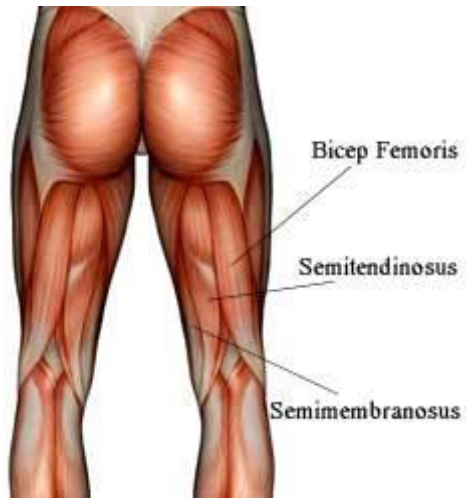
## Time before return to play for the most common injuries in professional football: a 16-year follow-up of the UEFA Elite Club Injury Study

Jan Ekstrand <sup>1,2</sup>, Werner Krutsch, <sup>3</sup> Armin Spreco, <sup>4</sup> Wart van Zoest, <sup>5</sup> Craig Roberts, <sup>6</sup> Tim Meyer, <sup>7</sup> Håkan Bengtsson <sup>1</sup>



OSICS 2 code [Injury DB]		Days absence due to injury					Re-injury
		Mean	Median	SD	Minimum	Maximum	%
1 TM1	Thigh strain/tear hamstrings	19	14	21	1	395	14%
2 GT1	Groin strain/pain adductor group	15	9	21	0	248	12%
3 AL1	Ankle sprain lateral lig	16	9	20	0	164	10%
4 TM2	Thigh strain/tear quadriceps	21	15	21	1	156	10%
5 QM1	Calf muscle strain	18	14	16	0	158	11%
6 KL3	Knee MCL tear/rupture	24	16	25	1	202	11%
7 TY1	Thigh pain/hypertonia hamstrings	7	5	7	0	90	11%
8 TH1	Thigh haematoma/contusion	7	4	8	0	93	0%
9 FH1	Foot haematoma/contusion	7	4	11	0	124	3%
10 KH1	Knee haematoma/contusion	7	4	10	0	110	2%

# Time trends of injuries in professional football: Hamstring Injuries (HI)- the big problem!



Original research



OPEN ACCESS

Hamstring injury rates have increased during recent seasons and now constitute 24% of all injuries in men's professional football: the UEFA Elite Club Injury Study from 2001/02 to 2021/22

Jan Ekstrand <sup>1</sup>, Håkan Bengtsson <sup>1</sup>, Markus Waldén <sup>1</sup>, Michael Davison, <sup>2</sup>  
Karim M Khan <sup>3</sup>, Martin Hägglund <sup>1</sup>



Designed by  
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# THE EVOLUTION OF PHYSICAL AND TECHNICAL PERFORMANCE PARAMETERS IN THE ENGLISH PREMIER LEAGUE

By Barnes, Archer, Hogg, Bush & Bradley  
International Journal of Sports Medicine, November 2014

## BETWEEN 2006-07 & 2012-13





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**Step 2** in injury prevention:  
Find out the Injury mechanisms

**What** is causing the problem?

Which are the modifiable risk factors?

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ECIS team doctors' meeting in Porto season 2012/13:

**What are the most important factors to prevent injuries in elite level football?**

# The most important factors to prevent injuries in elite level football

- ✓ Leadership styles of coaches
- ✓ Load on players
- ✓ Internal communication
- ✓ Well-being of players





# Health factors and performance capacity in professional football (and other elite level sports?) are similar to those in health and working capacity at a working place



- ✓ Leadership styles of coaches
- ✓ Internal communication
- ✓ Load on players
- ✓ Well being of players

- ✓ Leadership styles of bosses /directors
- ✓ Internal communication
- ✓ Load on employees
- ✓ Well being of employees

# The impact of leadership style on injuries

- Leadership styles of coaches
- Load on players
- Internal communication
- Well-being of players



Original article



OPEN ACCESS

Is there a correlation between coaches' leadership styles and injuries in elite football teams? A study of 36 elite teams in 17 countries

Jan Ekstrand,<sup>1,2</sup> Daniel Lundqvist,<sup>1,3</sup> Lars Lagerbäck,<sup>2</sup> Marc Vouillamoz,<sup>4</sup>

BMJ

Ekstrand J, et al. *Br J Sports Med* 2018;**52**:527–531.

OPEN ACCESS

# Coach behaviour that is correlated to less injuries and a higher player availability

- Gives encouragement and recognition
- Treats staffs and players like individuals



I have chosen you  
because you are the best  
I have full confidence in  
you – you are doing a  
great job





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# Coach behaviour that is correlated to less injuries and a higher player availability

- Fosters trust, involvement and cooperation



if you want to achieve a success like this, then the whole team has to work perfectly like a machine, and all the pieces of the puzzle need to fit together into one picture."

# Internal communication and injuries in elite clubs

Original article

Communication quality between the medical team and the head coach/manager is associated with injury burden and player availability in elite football clubs

Jan Ekstrand,<sup>1,2</sup> Daniel Lundqvist,<sup>3</sup> Michael Davison,<sup>2,4</sup> Michel D'Hooghe,<sup>2,5</sup> Anne Marte Pensgaard<sup>6</sup>

Br J Sports Med: first published



*“The communication between the medical team and the head coach/manager is vital for the injury situation and player availability in elite football”*



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# The size of the team behind the team is correlated to communication



Champions League teams in football often have 20-30 persons around the team = too many for optimal communication

Optimal communication: max 8-10 persons

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# The most important factor to prevent injuries in elite level football



Coach is key!!



What can teams do to avoid injuries (and win matches)?



# Listen and learn from people working on the field







# Modifiable risk factors at elite level (Women = Men)


The majority of modifiable risk factors for Hamstring injuries are **extrinsic** (ie, associated with the club and coaching staff) rather than **intrinsic** (associated with the players themselves)

Open access

Original research

BMJ Open  
Sport &  
Exercise  
Medicine

## Risk factors for hamstring muscle injury in male elite football: medical expert experience and conclusions from 15 European Champions League clubs


Jan Ekstrand <sup>1</sup>, Peter Ueblicher,<sup>2</sup> Wart Van Zoest,<sup>3,4</sup> Raymond Verheijen,<sup>5</sup> Bruno Vanhecke,<sup>6,7</sup> Maikel van Wijk,<sup>8</sup> Håkan Bengtsson<sup>1,9</sup>

Knee Surgery, Sports Traumatology, Arthroscopy  
<https://doi.org/10.1007/s00167-023-07429-5>

SPORTS MEDICINE



**Most modifiable risk factors for hamstring muscle injury in women's elite football are extrinsic and associated with the club, the team, and the coaching staff and not the players themselves: the UEFA Women's Elite Club Injury Study**

Jan Ekstrand<sup>1,2</sup>  · Anna Hallén<sup>1,2</sup> · Vittoria Marin<sup>3</sup> · Håkan Gauffin<sup>4</sup>

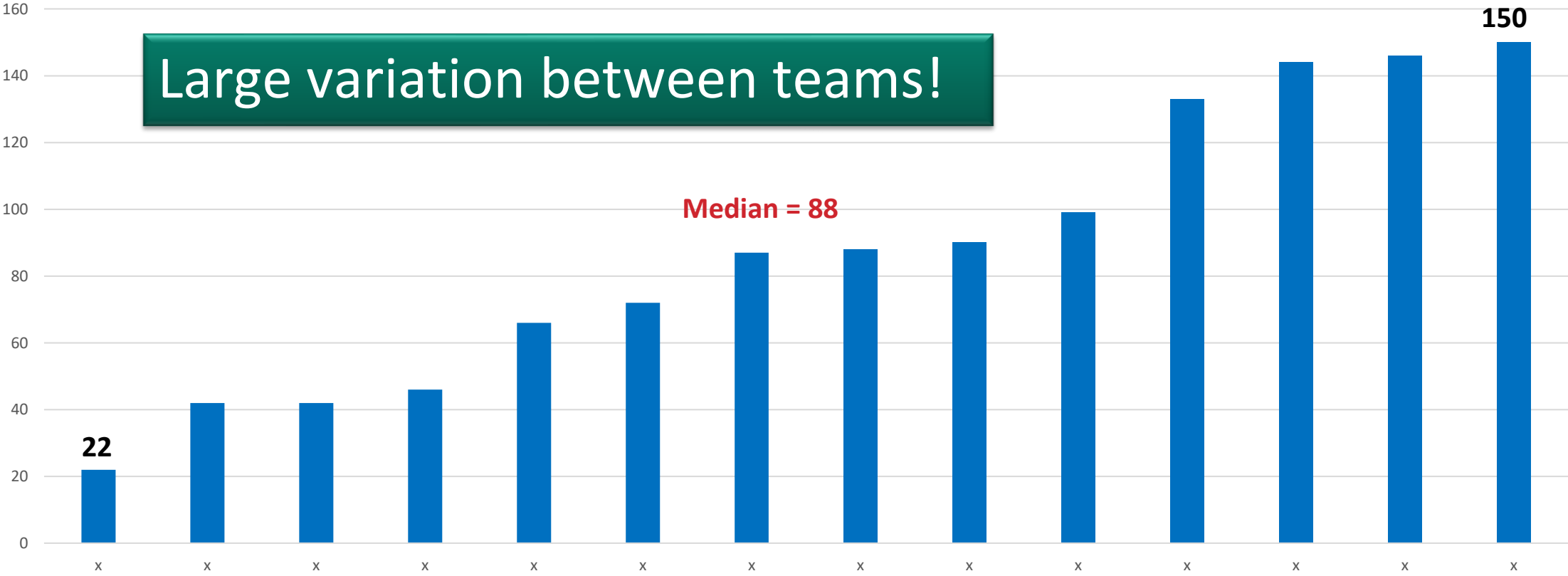
Received: 21 February 2023 / Accepted: 19 April 2023  
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Football Research Group



# Total Hamstring injury burden (nr of absence days/1000h exposure) for 3 seasons (2019/20, 2020/21, 2021/22)



We contacted the Chief Medical Officers (CMO) of male Champions League teams that have had a **lower-than-average** hamstring injury rate during last 3 seasons (2019/20, 2020/21, 2021/22, N=7)

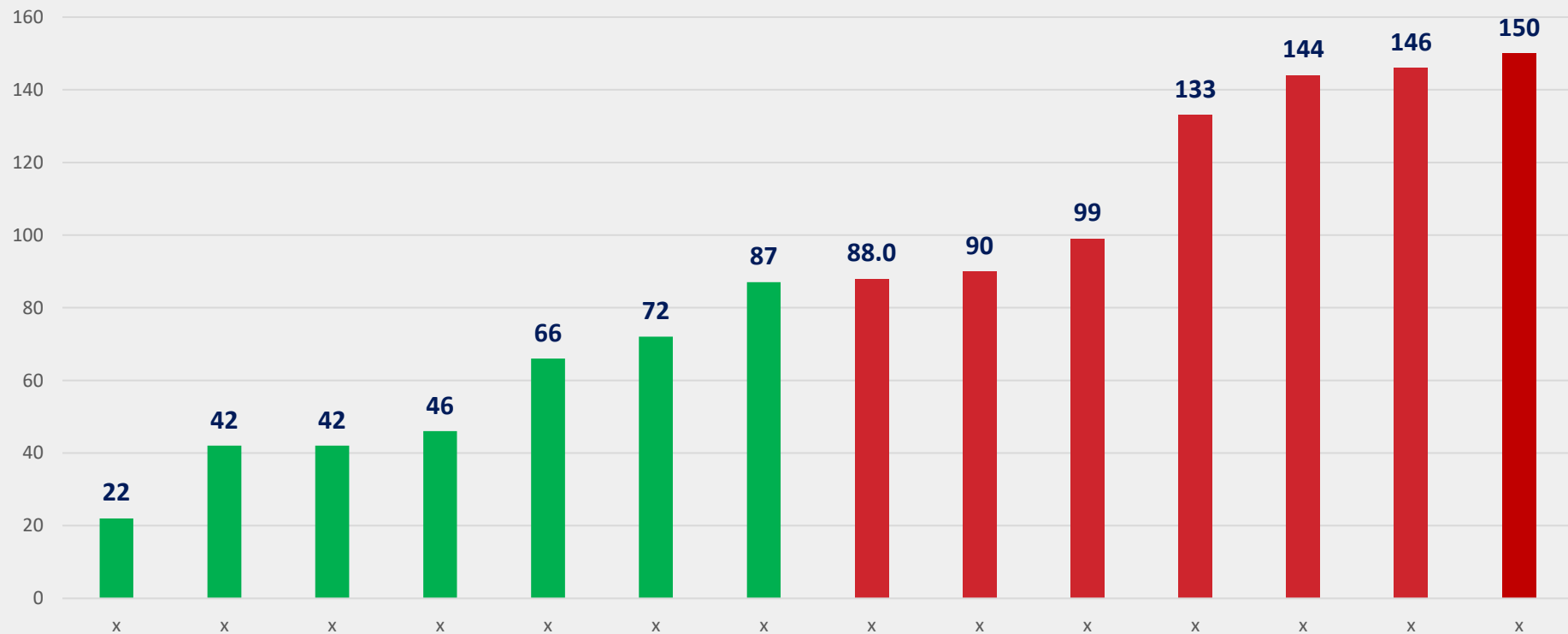


“Why have your team been successful in avoiding hamstring injuries, what preventive methods have you used?”



# Top-Performers

Total Hamstring injury burden for 3 seasons  
(19/20, 20/21, 21/22)



Top Performers N=7

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## Preventive methods suggested by Top-Performers

- Establish an optimal communication within the team  
(coaching and medical team to share information and handle risk management)
- Establish a close co-operation and thrustful relation between medical and coaching team  
(daily meetings to discuss all players in squad)
- Establish an optimal load on players and team  
(avoid training/loading/matching errors leading to deficiencies and/or fatigue by individualized periodization of load over the season)
- Regular exposure to high-speed football actions during training  
(trainings should mimic matches)
- Individualized pre-activation regims based on player's weaknesses  
(to eliminate deficiencies in players not prepared for match demands, for example residual weakness after previous hamstring injury or lack of eccentric strength of the hamstrings)
- Optimal preseason preparation - avoid tiring promotional travels
- Establish continuity of the staff around the team

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## Changes of staff around male Champions League teams

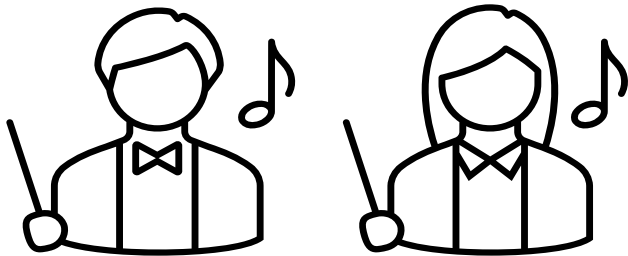
- 48% of head coaches/managers replaced each season
- Replacements of staff around the team increases hamstring injuries
- A new head coach bringing his own fitness/performance coach was associated with up to a 3-times increase of HI burden
- Stability of staff around the players is important



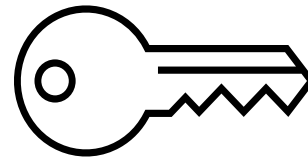
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# Male Champions League Clubs in Europe

Head Coach

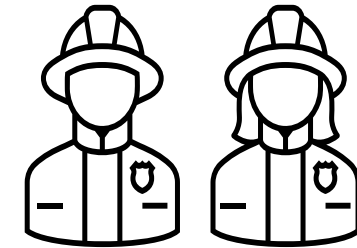


Fitness Coach /  
Performance  
Coach



to Hamstring Injury  
rates

Medical Team



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# Language of the sport

Every sport has its own terminology. In order to communicate in an optimal way without misunderstandings, a consensus about terminology and their definitions need to be worked out in every sport.



## Football language:

- Football actions vs basic actions
  - Transition
  - Presssing
-

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# Take home message:

- ✓ To win matches and trophies, players need to avoid injuries
  - ✓ Coaches are key to keep the players healthy
  - ✓ The road to injury prevention always starts with an injury surveillance study.
  - ✓ Such a study should be initiated by the international sports organization.
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Thank You

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@JanEkstrand

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# Injuries cost money !

Mr Sergei Palkin, CEO of Shakhtar Donetsk:

“If a line-up player in a UEFA Champions League team is **INJURED FOR 1 MONTH, IT COSTS THE CLUB UP TO € 583.000** ”



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Original research

## Estimation of injury costs: financial damage of English Premier League teams' underachievement due to injuries

Eyal Eliakim <sup>1</sup>,  Elia Morgulev <sup>2</sup>, Ronnie Lidor <sup>1</sup>, Yoav Meckel <sup>1</sup>

Correspondence to Dr Elia Morgulev; [eliamorgulev@yahoo.com](mailto:eliamorgulev@yahoo.com)



PDF



XML

**Calculating the costs of wage bills and prize money, we estimate that an EPL team loses an average of £45 million sterling due to injury-related decrement in performance per season.**

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