Injuries in Sport
- Impact Management of Players and the Role Communication Has on Preventing Injuries
Injuries in sport - The role coaches, management and communication have on preventing injuries

Prof. Jan Ekstrand MD, PhD
UEFA male Elite Club Injury Study (ECIS) seasons 2001-2023

Teams send data every month!

25 000 injuries

✓ 55 clubs
✓ 21 countries

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

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
Villarreal

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

FC Copenhagen
Shakhtar Donetsk
FC Basel
Olympiacos FC
Galatasaray AS
FC Maribor
Malmö FF
Maccabi Tel-Aviv
Celtic FC
PFC Ludogorets

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

Manchester City FC
Chelsea FC
Olympique Lyonnais
Sporting Clube de Portugal
AFC Ajax
PSV Eindhoven
FC Bayern Munich
FC Rosengård
Linköping FC
FC Barcelona
Athletic Club
AC Milan
Juventus
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Professional sport

Coaches are key for injury prevention and performance
The bottom line in elite level sport:

Winning matches and trophies = the **WHY** of sports at professional level
HOW to win matches and trophies?
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

An injury means a notch in the player's development
Player Availability

Figure 20. Squad availability rates for matches

Benchmark: > 90%
UCL Team X followed for 14 seasons

Better availability = more trophies

= UEFA recognised trophies
HOW to avoid injuries?
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?
Consequences of injuries in elite level football

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 1,2, Werner Krutsch, 3 Armin Spreco, 4 Wart van Zoest, 5 Craig Roberts, 6 Tim Meyer, 7 Håkan Bengtsson 1

<table>
<thead>
<tr>
<th>OSICS 2 code [Injury DB]</th>
<th>Days absence due to injury</th>
<th>Re-injury</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>1TM1 Thigh strain/tear hamstrings</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>2GT1 Groin strain/pain adductor group</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>3ALL1 Ankle sprain lateral lig</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>4TM2 Thigh strain/tear quadriceps</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>5QM1 Calf muscle strain</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>6KL3 Knee MCL tear/rupture</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>7Y1 Thigh pain/hip extensor hamstrings</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>8TH1 Thigh haematoma/contusion</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>9FH1 Foot haematoma/contusion</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>10RH1 Knee haematoma/contusion</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>
Time trends of injuries in professional football: Hamstring Injuries (HI)- the big problem!

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, 1 Håkan Bengtsson, 1, 2 Markus Waldén, 1 Michael Davison, 1, 2 Karim M Khan, 1, 2, 3 Martin Hägglund 1

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The Evolution of Physical and Technical Performance Parameters in the English Premier League

Between 2006-07 & 2012-13

- +30% High-Intensity Running Distance
- +35% Sprint Distance
- +50% Actions
- +12% Passes
- -2% Total Distance Covered
- +80% Number of Sprints
Step 2 in injury prevention:
Find out the Injury mechanisms

What is causing the problem?

Which are the modifiable risk factors?
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.
The impact of leadership style on injuries

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

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,1,2 Daniel Lundqvist,1,3 Lars Lagerbäck,2 Marc Vouillamoz,4

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.
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.”

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

- Fosters trust, involvement and cooperation

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Internal communication and injuries in elite clubs

“Communication quality between the medical team and the head coach/manager is associated with injury burden and player availability in elite football clubs.”
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
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
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).
Total Hamstring injury burden (nr of absence days/1000h exposure) for 3 seasons (2019/20, 2020/21, 2021/22)

Median = 88

Large variation between teams!
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
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
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
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
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.
Thank You

@JanEkstrand
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”
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.