

DEPARTMENT FOR HEALTH
Sport, Health and Exercise Science



So after all that fuss, should we really ban tackling
in youth rugby?

Professor Keith Stokes

Declarations / Acknowledgements



I think sport is important



I have received funding from:



Doctors urge schools to ban tackling in rugby

By Katherine Sellgren
BBC News education reporter

🕒 2 March 2016 | Education & Family | 📄



The letter says the risks "are high and injuries are often serious"

More than 70 doctors and academics are calling for a ban on tackling in rugby matches played in UK and Irish schools.



Dangerous play? Post-mortem exams on former NFL players...

Degenerative brain disease By RACHEL CO... A football r... Conussions



Making it happen: Child injury prevention and care 17th March 2016

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Top NFL official acknowledges link between American football and CTE

15 March 2016 | American football | 86

Share



Miller made his remarks before a committee of the US House of Representatives

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MEMORIAL DAY CONCUSSION CAMPAIGN

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What am I going to tell you?

- Sport is important for young people as a contribution to physically active lifestyles
- A substantial number of sports injuries occur in children and adolescents...
- ...but the evidence is relatively poor due to problems with definitions, recording and lack of a denominator
- There are ways to reduce injury risk in sport

So, should we ban tackles in youth rugby union?

Four-stage sequence of injury prevention



Van Mechelen et al. (1987). *National Institute for Sports Health Care*.

The Injury Pyramid: Sports injuries in EU-27



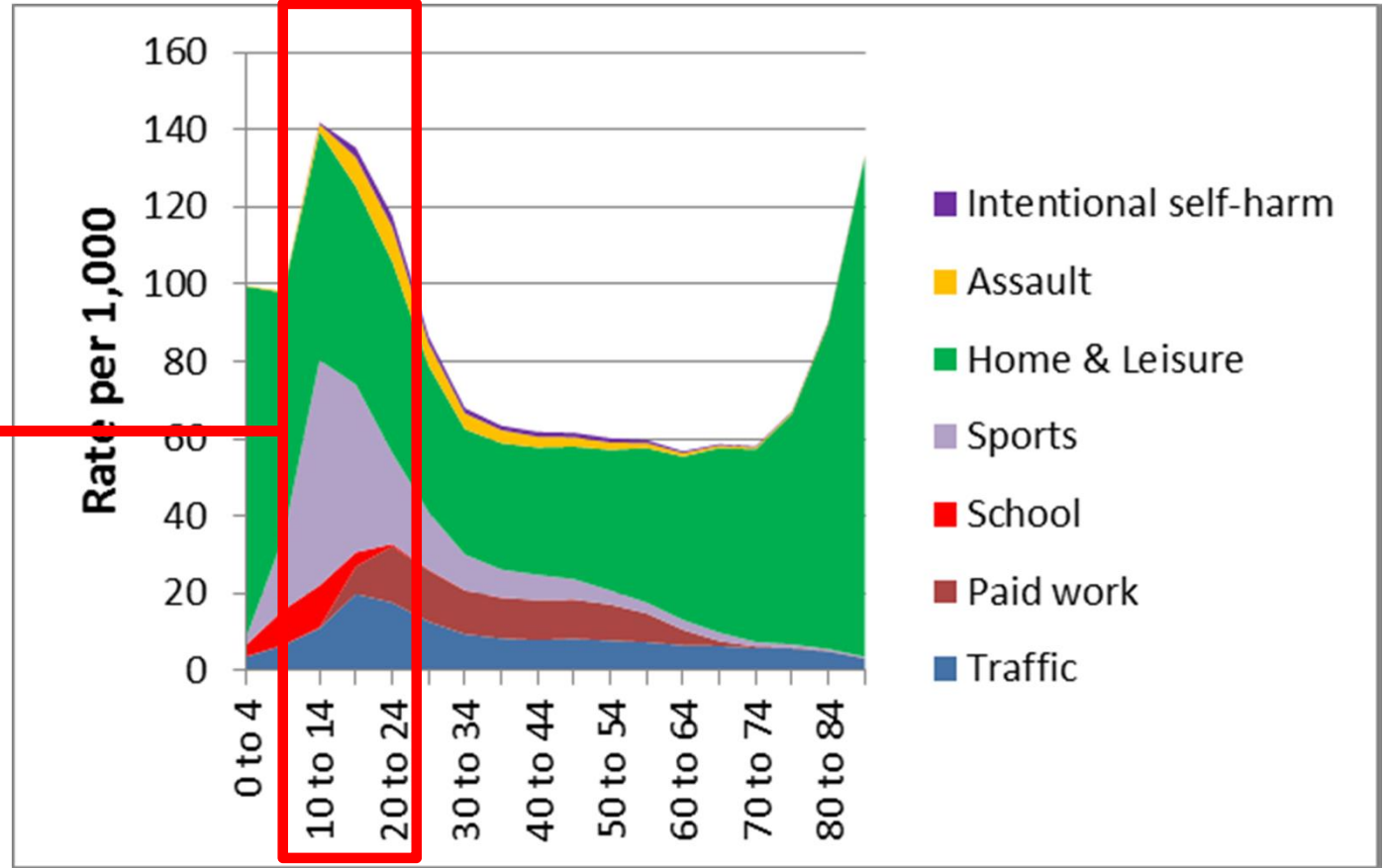
7,000	3% (of all fatal injuries)
419,000	7%
5,644,000	17%

6.1 million sports injuries out of 39.6 million total injuries in EU-27 i.e., 14%

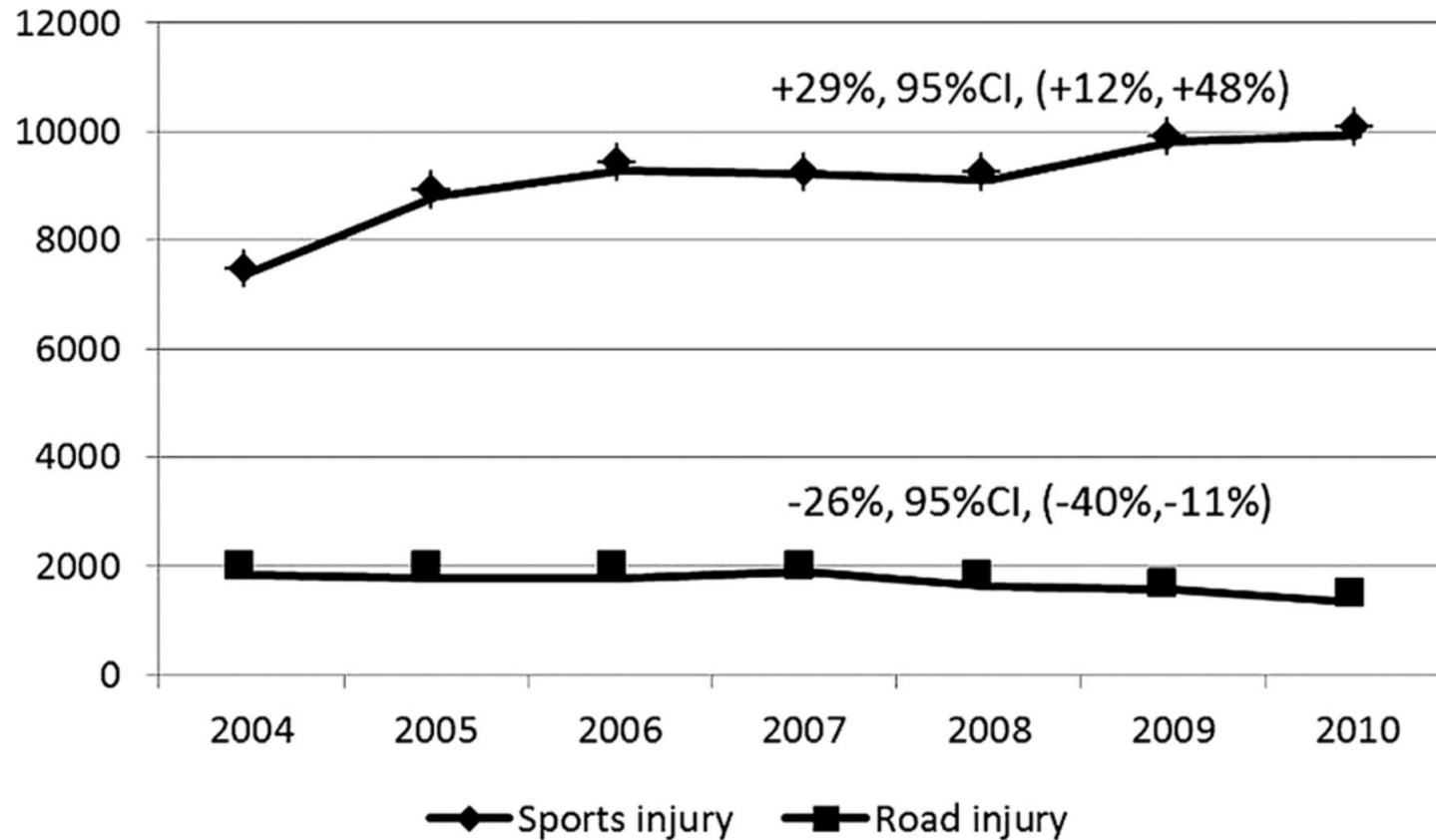
EU Injury Database (IDB) at http://ec.europa.eu/health/data_collection/databases/idb/

Sports injuries make a major contribution to all injuries in youth

Age group	Sports injuries as % of all injuries
5-9	19%
10-14	41%
15-19	32%
20-24	20%



Trends in frequency of hospital-treated sports-related and road traffic-related injury in children aged <15 years. (Victoria, Australia)

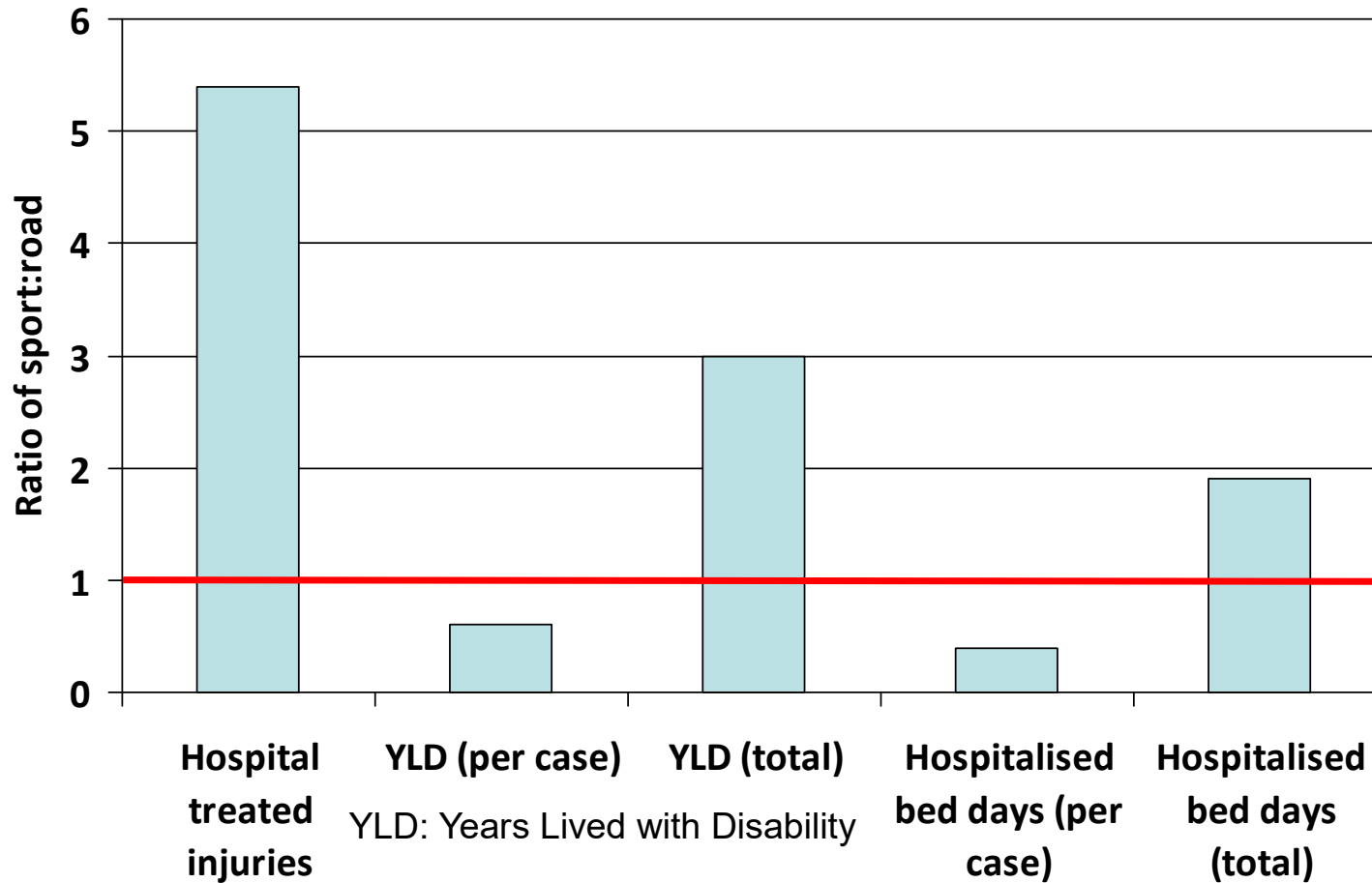


Finch et al. BMJ Open 2014;4:e005043

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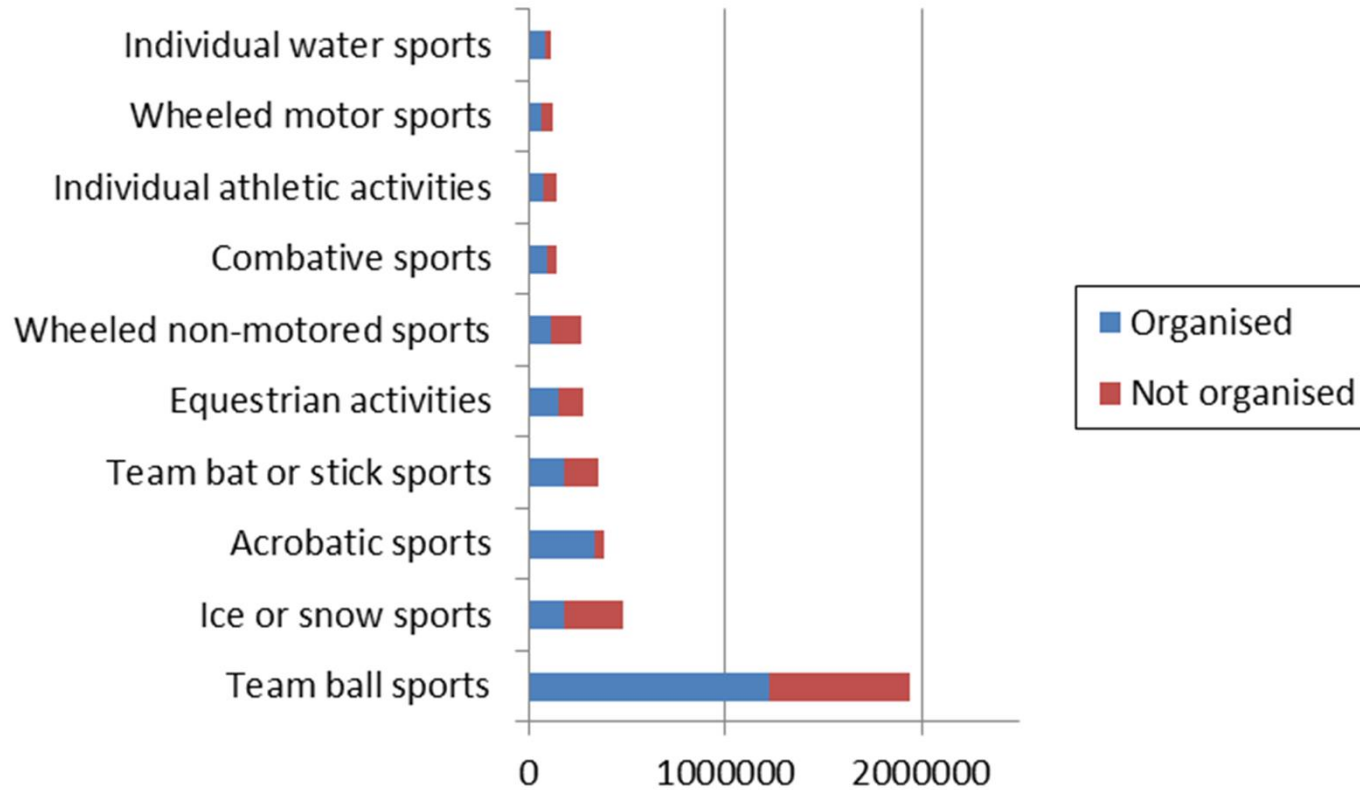
BMJ Open

Should sports injuries be a higher Public Health priority?



Finch et al. BMJ Open 2014;4:e005043

So which sports should be avoided?



Swansea University, Centre for Improving Population Health through E-Health Research (CIPHER), 2014. Sports Injuries 2010-2012. IDB data analysis.

EU Injury Database (IDB) at http://ec.europa.eu/health/data_collection/databases/idb/

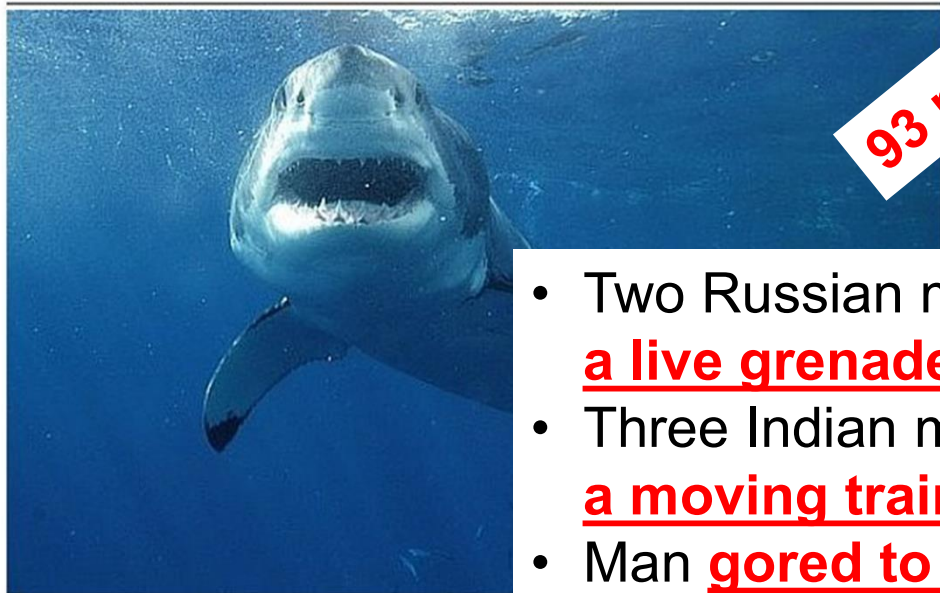
Selfies versus Sharks (The Telegraph September 2015)

HOME » TECHNOLOGY

More people have died by taking selfies this year than by shark attacks

It seems that taking a selfie is actually quite a dangerous endeavor, and many people have died while doing so

f 41K t p 0 in 177 41K Email

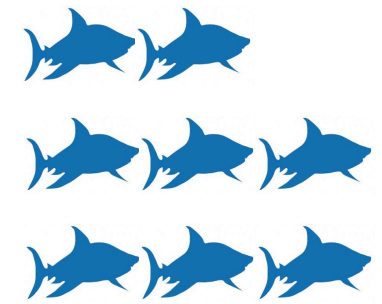


This little cutie is statistically less dangerous than your

93 million selfies taken each day



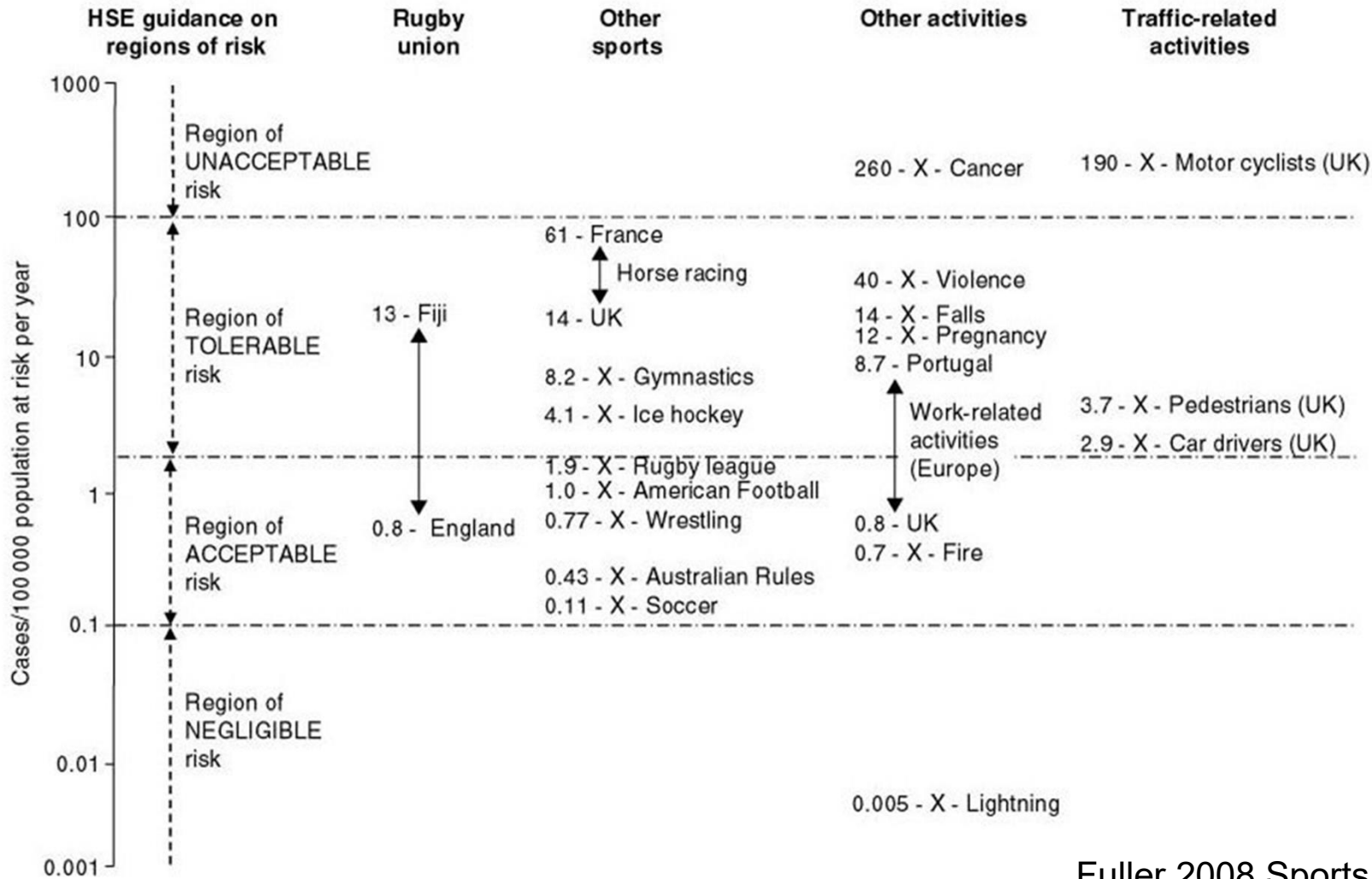
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- Two Russian men died taking a selfie while **playing with a live grenade with the pin pulled**
- Three Indian men died taking a selfie **running in front of a moving train**
- Man **gored to death in Spain by a bull during the annual bull running festival** while taking a selfie

What is an acceptable level of risk? Catastrophic injuries.



Fuller 2008 Sports Med 38: 975-986

A systematic review of rugby injuries

- A systematic review of rugby union and league injuries among players **under the age of 21 years** was carried out to calculate probabilities of match injury for a player over a season and a **pooled estimate** of match injury incidence where studies were sufficiently similar.
- The **probability of a player being injured over a season ranged from 6% to 90% for rugby union** and 68% to 96% for rugby league.
- The **pooled injury incidence** estimate for rugby union was...equivalent to a **28.4%**...risk of being injured over a season.
- **Study heterogeneity contributed to a wide variation in injury incidence.**

Freitag et al. 2014 Br J Sports Med 49: 511-519

What injuries are we interested in?



“...28.4%...risk of being injured over a [rugby] season”

BUT

“Study heterogeneity contributed to a wide variation in injury incidence”

Freitag et al. 2014 Br J Sports Med 49: 511-519

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

Br J Sports Med 2007;41:328–331. doi: 10.1136/bjism.2006.033282

REVIEW

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

C W Fuller, J Ekstrand, A Junge, T E Andersen, R Bahr, J Dvorak, M Hägglund, P McCrory, W H Meeuwisse

Br J Sports Med 2006;40:193–201. doi: 10.1136/bjism.2005.025270

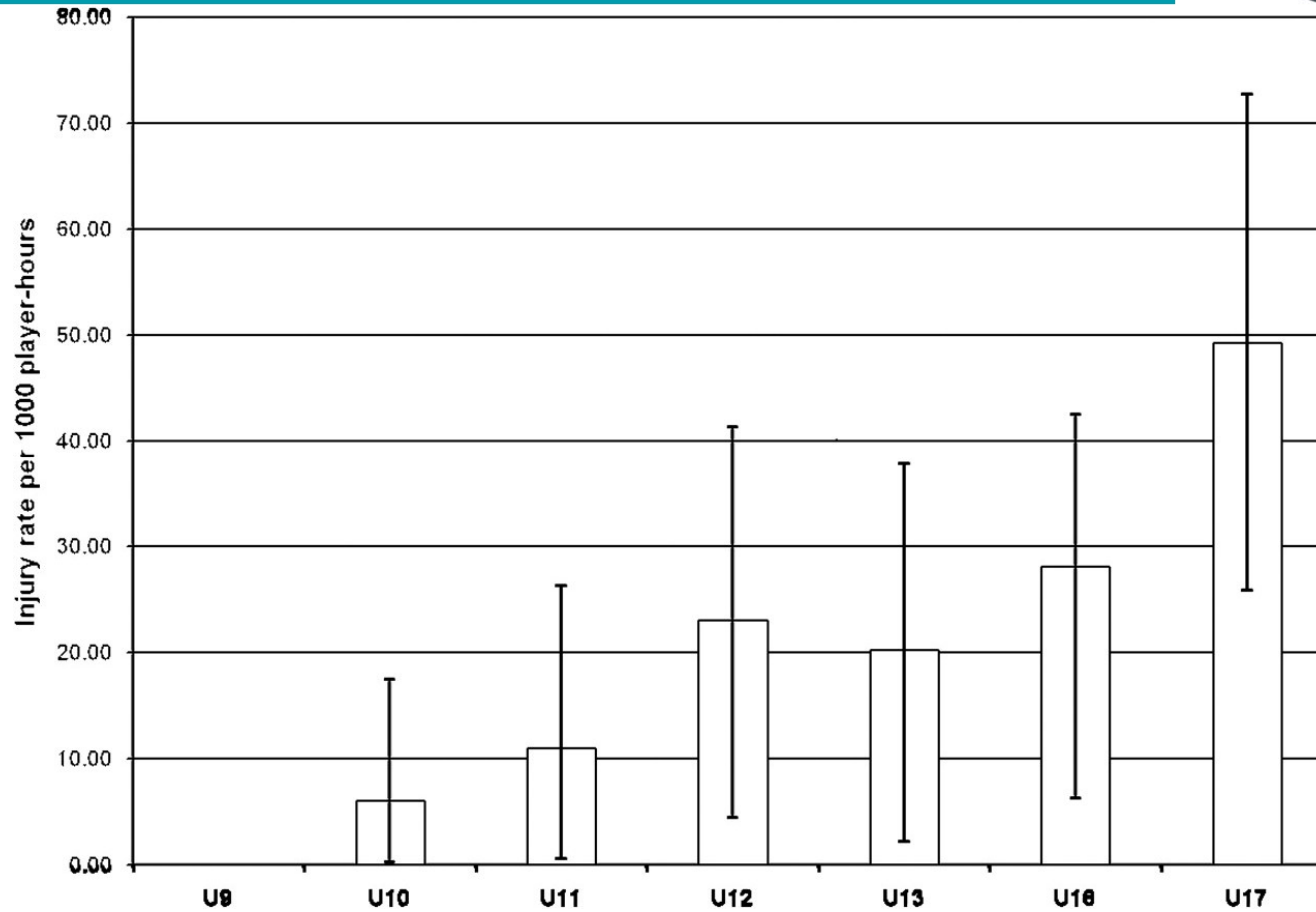
ORIGINAL ARTICLE

Methods for injury surveillance in international cricket

J W Orchard, D Newman, R Stretch, W Frost, A Mansingh, A Leipus

Br J Sports Med 2005;39:e22 (<http://www.bjsportmed.com/cgi/content/full/39/4/e22>). doi: 10.1136/bjism.2004.012732

Injury rate per 1000 player-hours in community rugby union by team age group with 95% CIs. There was a trend for increasing injury rate with increasing age.



Haseler et al. Br J Sports Med 2010;44:1093-1099

There are numerous issues with current information sources

- Public health policy needs good population burden data
- But population-level data is largely insufficient to identify priorities for sports injury prevention
- Sports bodies, clinical practice and Government all have different needs
- Is it possible to convince those who bear the cost that prevention is worth investment?

Professional Rugby Injury Surveillance Project

EPIDEMIOLOGY | Prospective cohort design

Over **one million hours** of match and training exposure

Including over **70,000 hours** of match exposure

Capturing over **10,000 time loss injuries**

Involving **1986 players** and equivalent to **4572 player seasons**

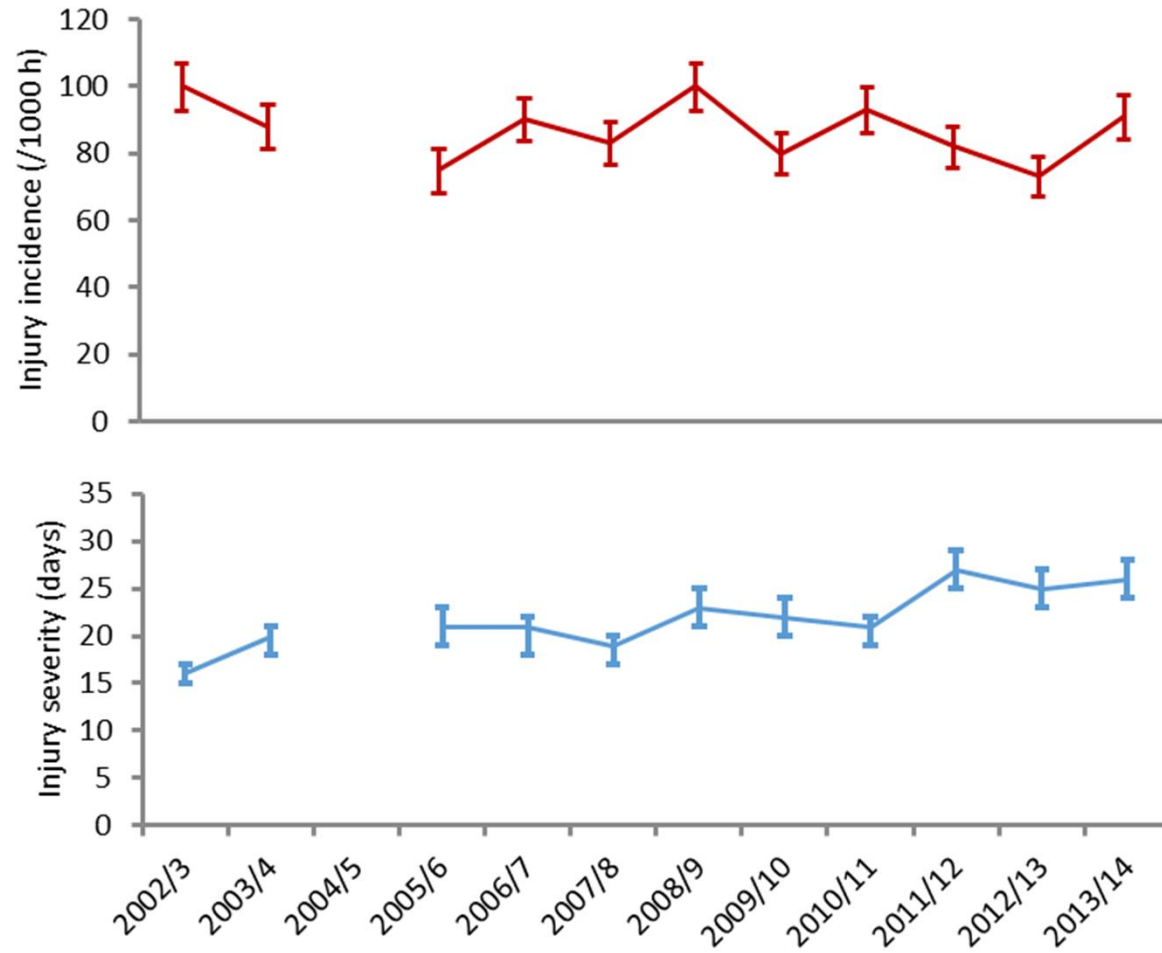


Match injuries (2002-2014)



Mean incidence:
87 /1000 hours

Mean severity:
22 days



Academy and School Match Injuries (2006-08)

Academy

2,343 hours of match exposure

2006-07: **131 players**

2007-08: **119 players**

109 reported match injuries

Incidence: 47 /1000 hours 95% CI: 39-57

School

3,843 hours of match exposure

2006-07: **139 players**

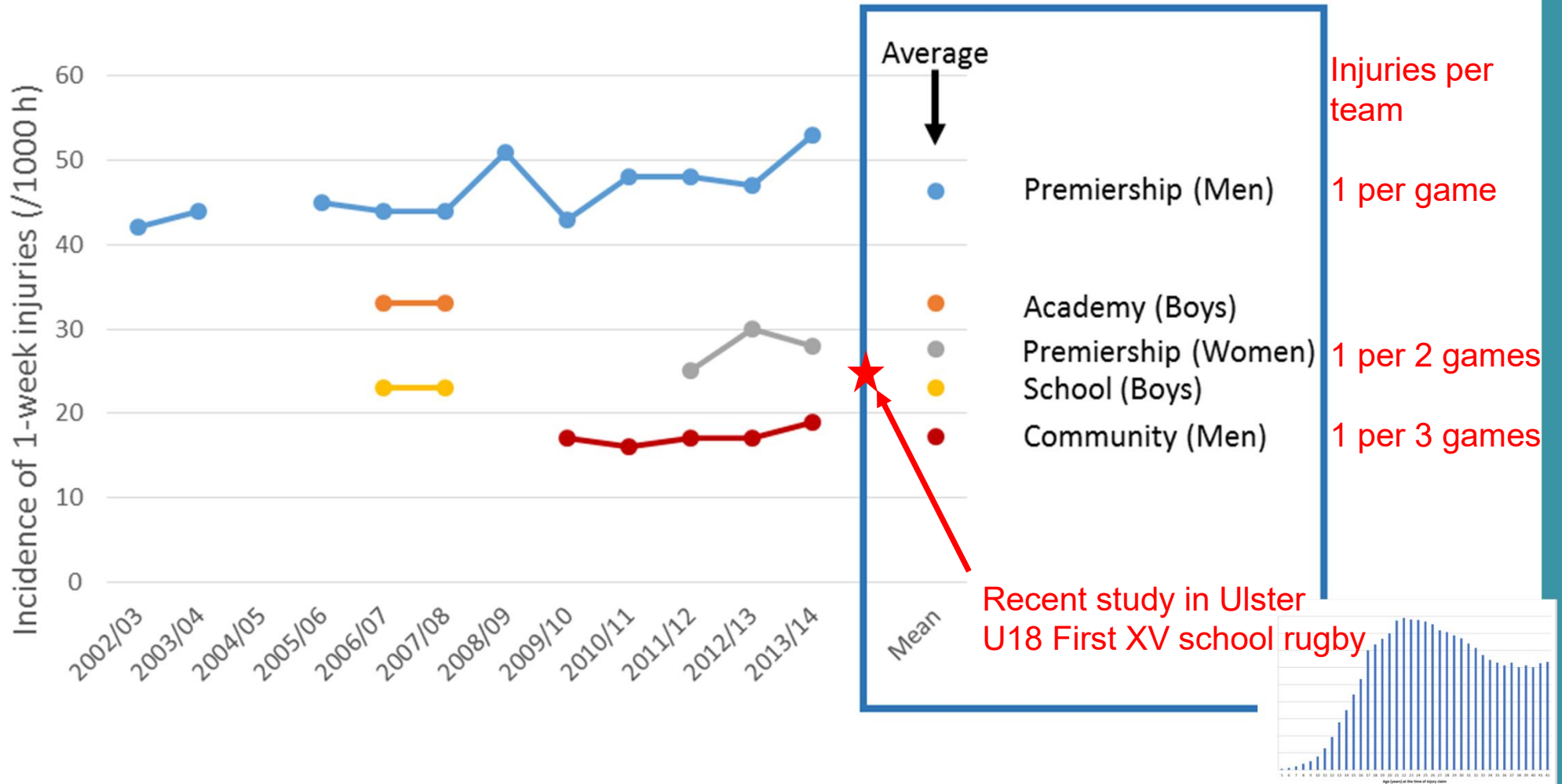
2007-08: **83 players**

134 reported match injuries

Incidence: 35 /1000 hours 95% CI: 29-41



Incidence of 1-week injuries at different levels



What can we do to reduce risk in sport?

- 1) Eliminate exposure
- 2) Reduce exposure
- 3) Change playing structure
- 4) Education / Player preparation
- 5) Protective equipment

Hierarchy of control

Elimination

Substitution

Engineering controls

Administrative controls

Behaviour

PPE

1) Eliminate exposure

Playground tig ban at Leeds primary school criticised

🕒 9 March 2016 | Leeds & West Yorkshire



[A parent], who has a child at the school, said: "The world's gone crazy, kids can't do 'owt these days."

A child at the school said: "They've been letting us play 'air tig', but I don't like the fact we can't play proper tig."

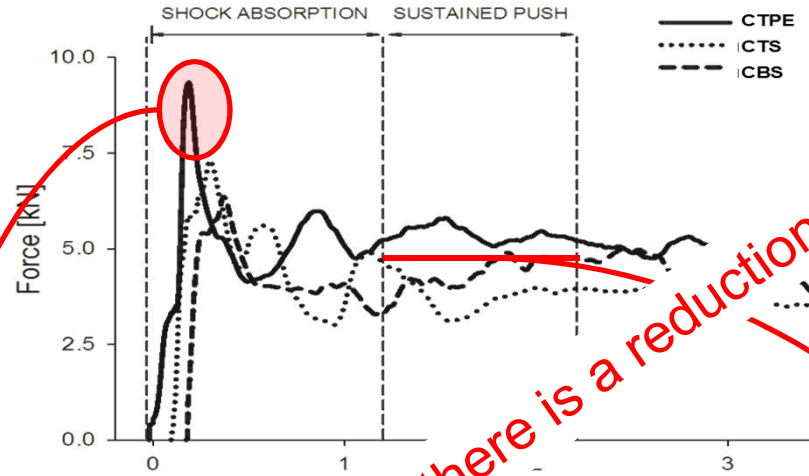
2) Reduce exposure: reduce forces



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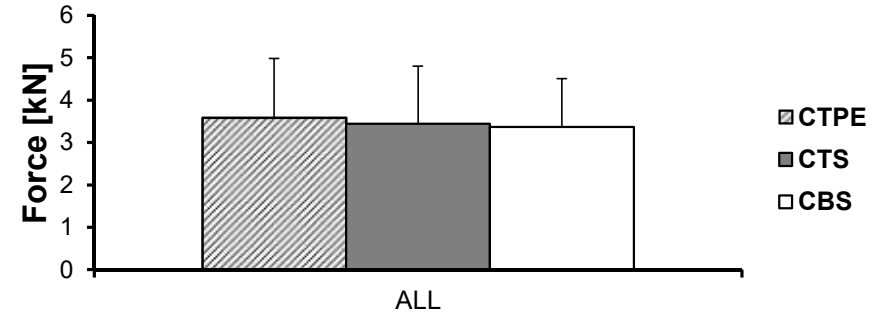
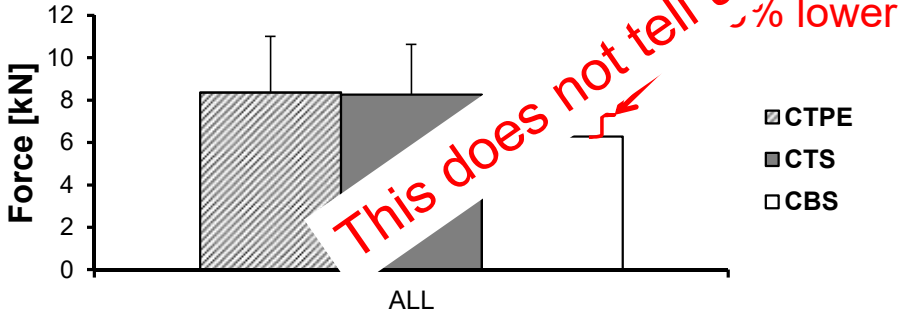


RESULTS: COMPRESSION FORCES



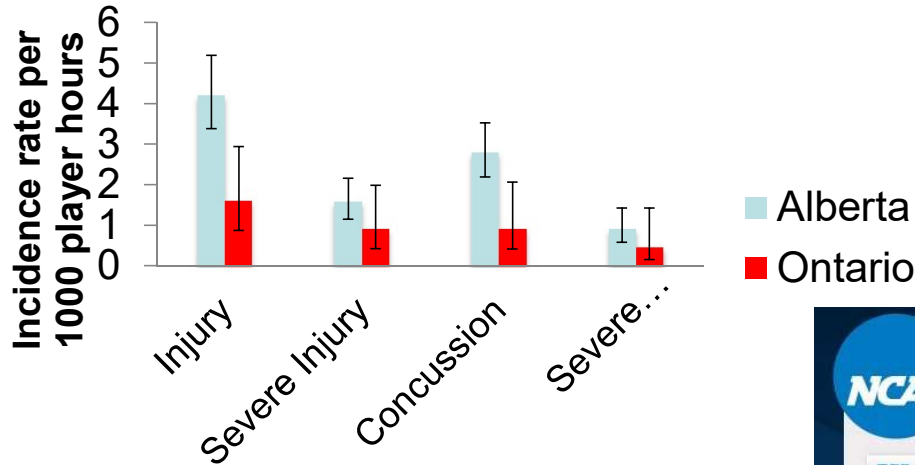
PEAK FORCE

SUSTAINED FORCE



This does not tell us whether there is a reduction in injuries!

2) Reduce exposure: limit contact



■ Alberta
■ Ontario

Lower injury rate in Ontario (no body checking) than Alberta (body checking) in 11-12 year olds



NCAA Sports Schools Championships Video Tickets Shop

FCS Football Home Scores Bracket Rankings Standings Stats Tou

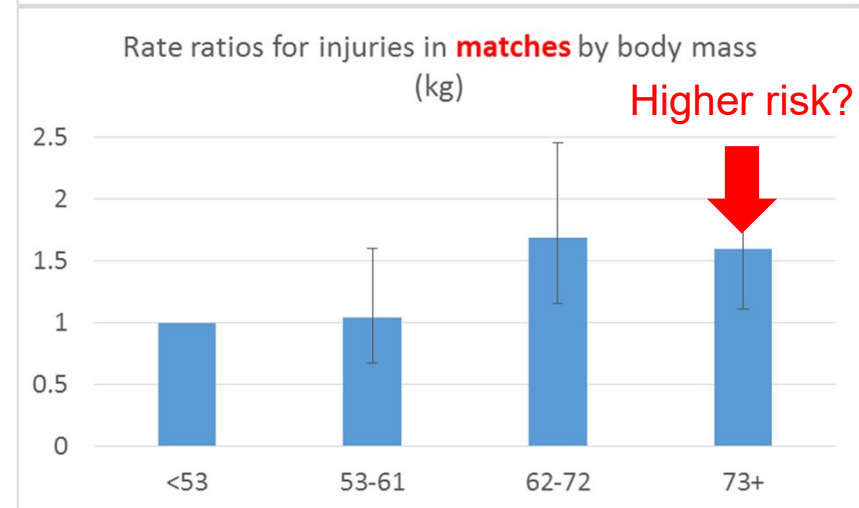
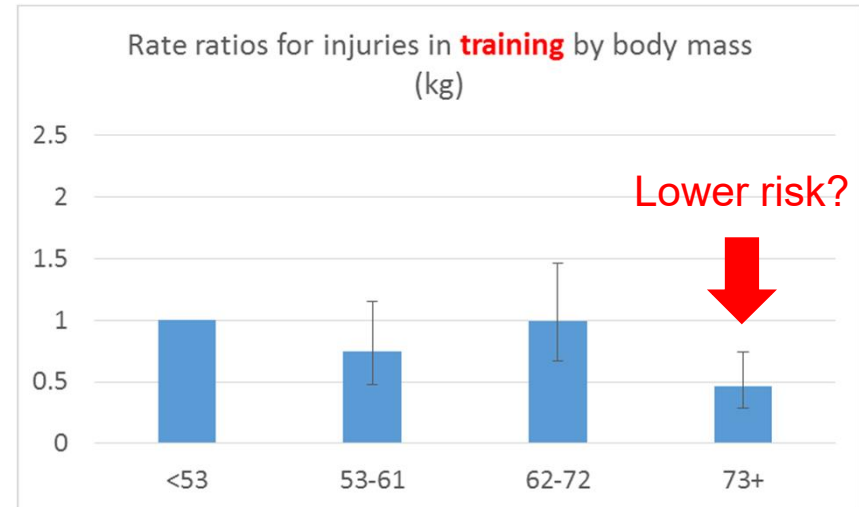
Dartmouth Athletics

Since limiting tackling in 2010, Dartmouth has not had a losing record and won a share of the Ivy title in 2015.

College football: Ivy League limits tackling in football practices

3) Administrative changes

Playing in weight categories / Bio-banding: the “obvious” solution?

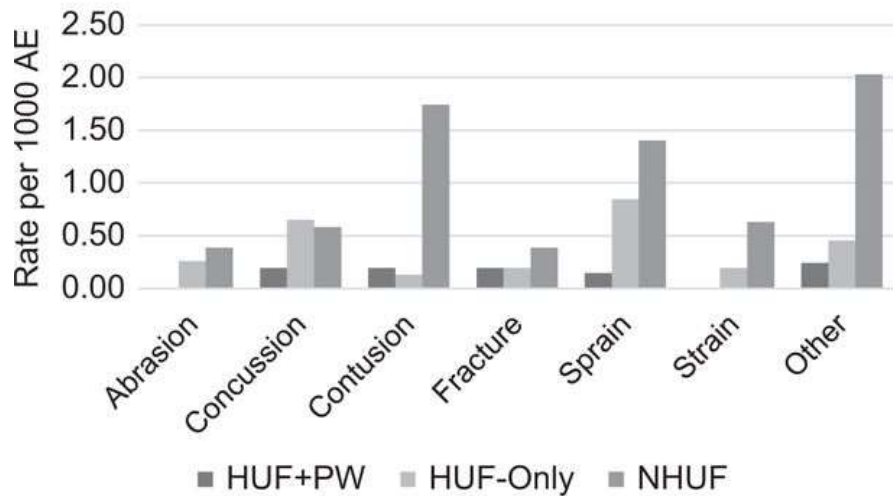


Lear (unpublished data)

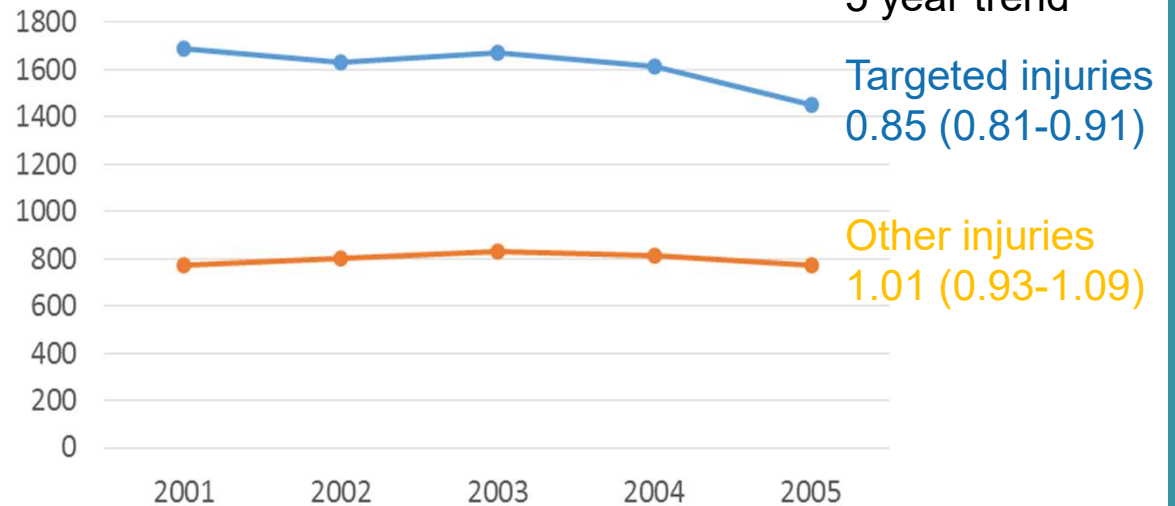
4) Education



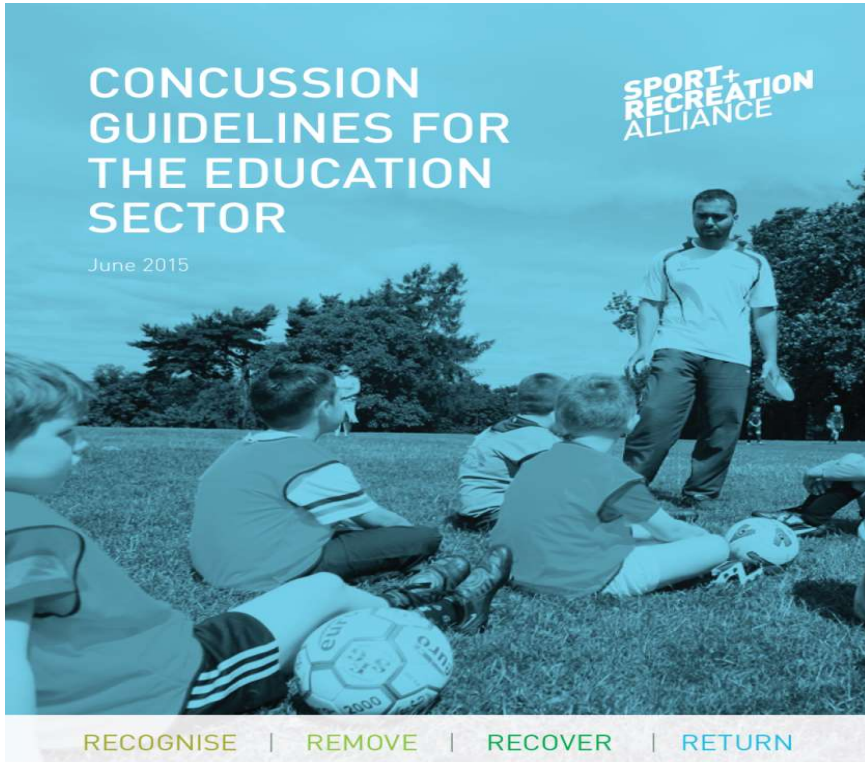
All injuries - Practice



ACC rugby claim rates from 2001 to 2005

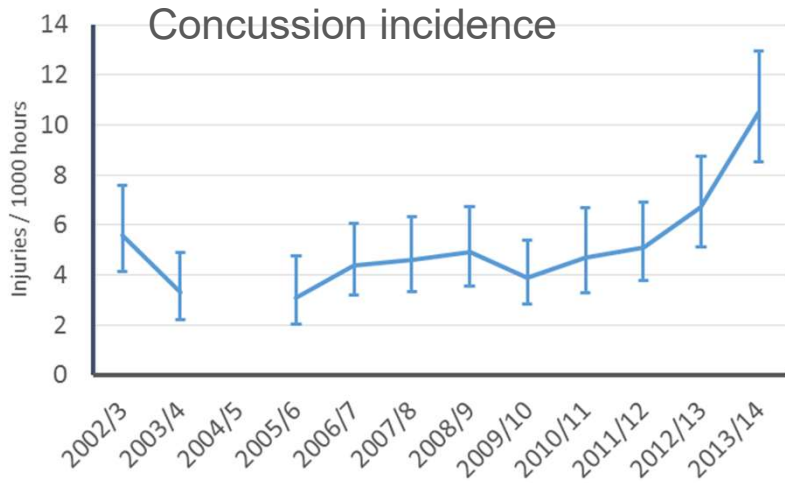


Concussion education / awareness programmes

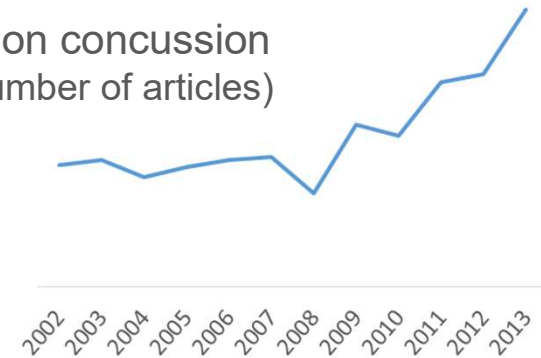


Check out our interactive web courses – online education for Coaches, Match Officials, Players and Teachers, Parents & Guardians of youth players.

Changes in concussion incidence in professional rugby union

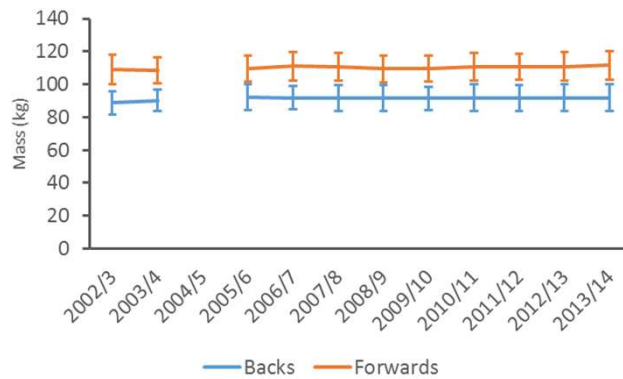


Scientific interest:
Number of articles on concussion
(corrected for total number of articles)



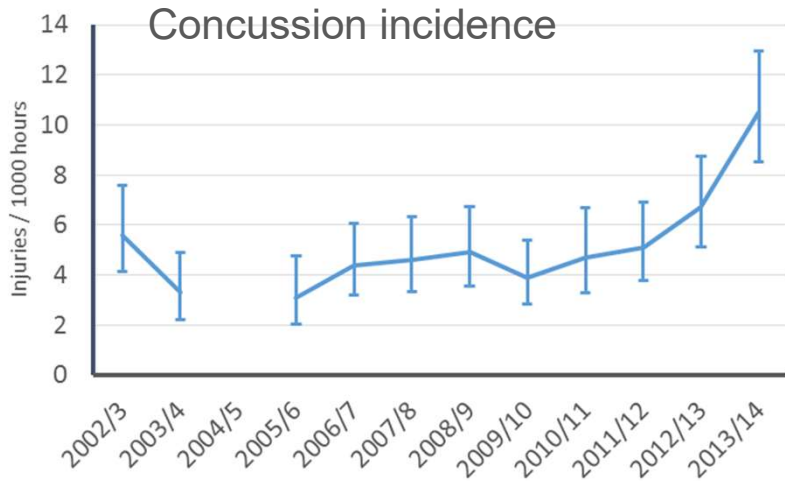
<http://dan.corlan.net/medline-trend.html>

Player characteristics:
Body mass

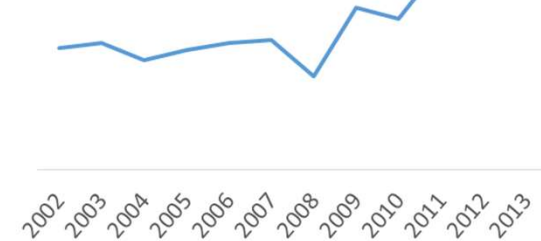


Adapted from Fuller *et al. J Sports Sci* 2013;31:795-802

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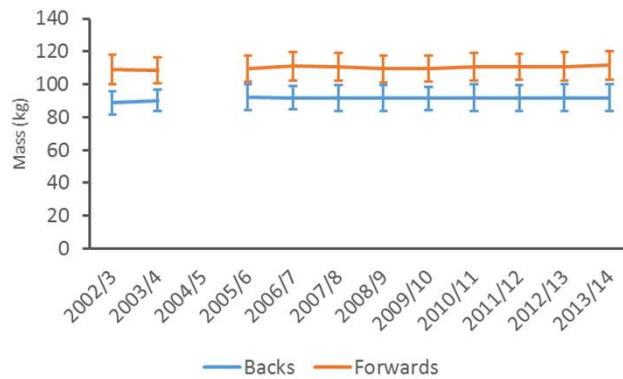


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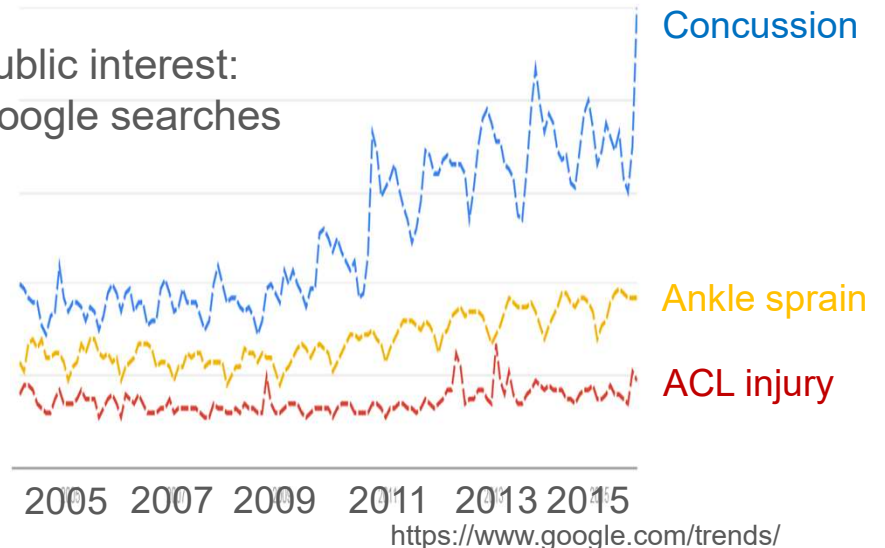
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Player characteristics:
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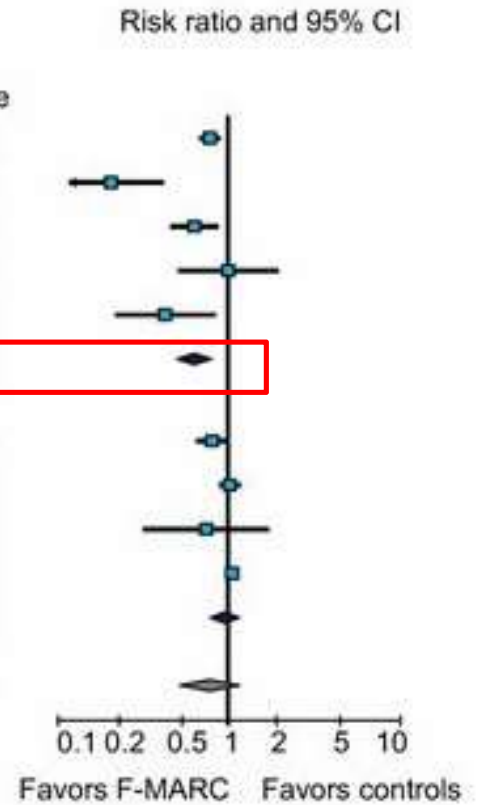
Public interest:
Google searches



4) Improving player preparation



Warm-up type	Study	Statistics for each study			
		Risk ratio	Lower limit	Upper limit	p-Value
11+	Soligard et al. [3]	0.771	0.666	0.892	0.000
11+	Grooms et al. [20]	0.183	0.086	0.389	0.000
11+	Steffen et al. [15]	0.616	0.438	0.865	0.005
11+	Hammes et al. [17]	1.010	0.493	2.067	0.979
11+	Owoeye et al. [16]	0.403	0.196	0.828	0.013
Overall 11+		0.612	0.475	0.788	0.000
11	Junge et al. [18]	0.798	0.642	0.992	0.042
11	Steffen et al. [11]	1.034	0.895	1.195	0.649
11	Gatterer et al. [19]	0.731	0.295	1.814	0.500
11	van Beijsterveldt et al. [13]	1.073	1.017	1.132	0.010
Overall 11		0.961	0.776	1.191	0.717
		0.771	0.496	1.200	0.249

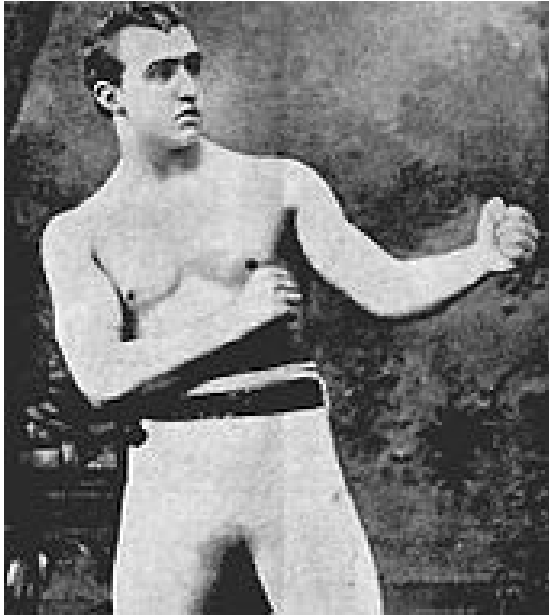


39% reduction in lower limb injuries

Saleh et al. 2016 Sports Med 46: 205-217

5) Protective equipment: unintended consequences?

Distance apart



Number of punches to the head

What I have told you

- Sport is important for young people as a contribution to physically active lifestyles
- Sports injuries contribute 20-40% of all injuries in children and adolescents...
- ...but the evidence is relatively poor due to problems with definitions, recording and lack of a denominator
- There are examples of successful injury reduction in sport through law changes, regulation of training practices, education programmes and improved player preparation

So, should we ban tackles in youth rugby union?

- It is a good question, but probably not... (needs a less polarised debate!)
...however, there should be sustained effort to improve safety in all youth sport