Edinburgh Cyclists' Tram Injuries

Prof Chris Oliver

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CyclingSurgeon.Bike

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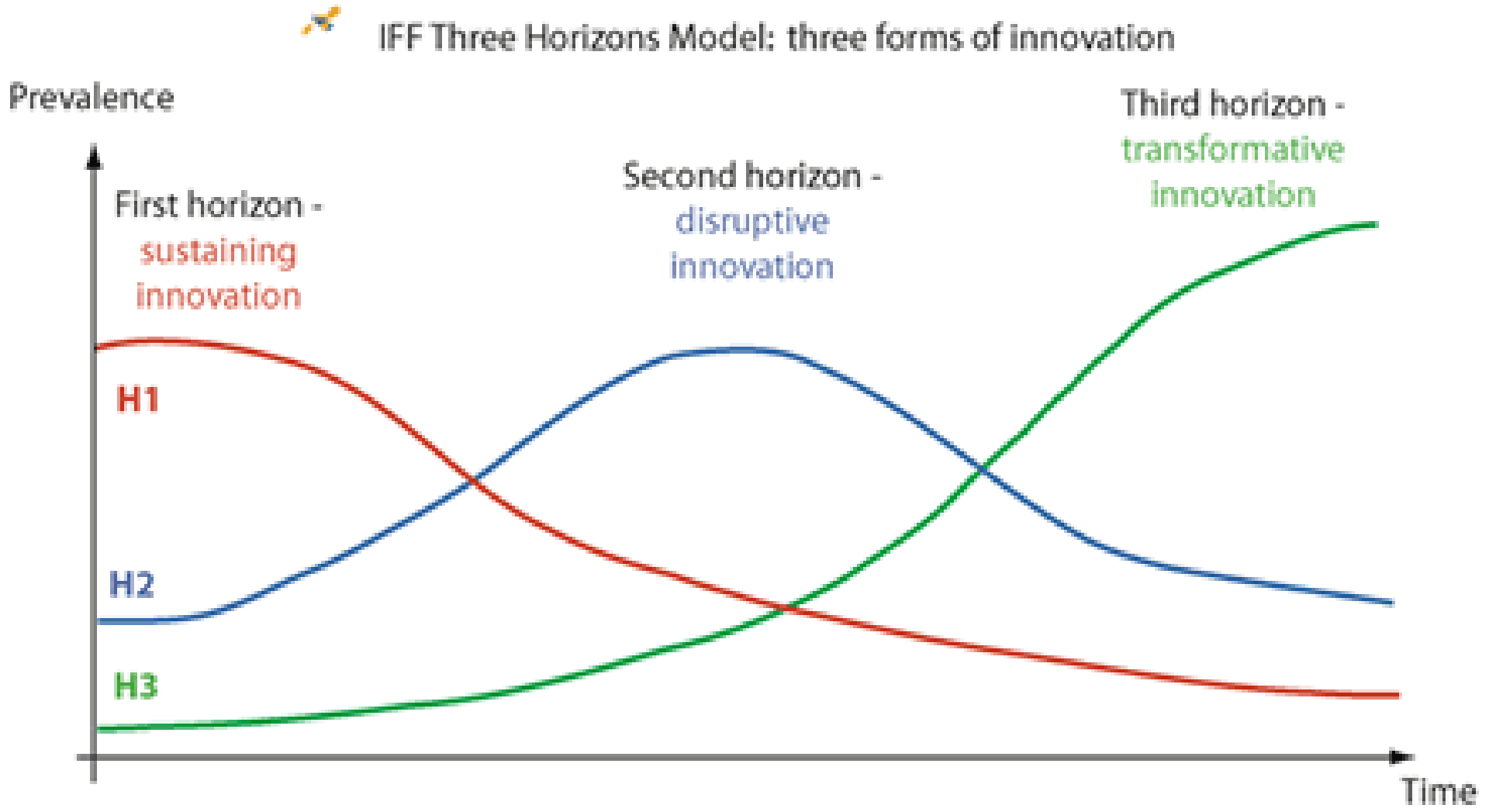
Edinburgh Orthopaedic Trauma Unit, Royal Infirmary of Edinburgh

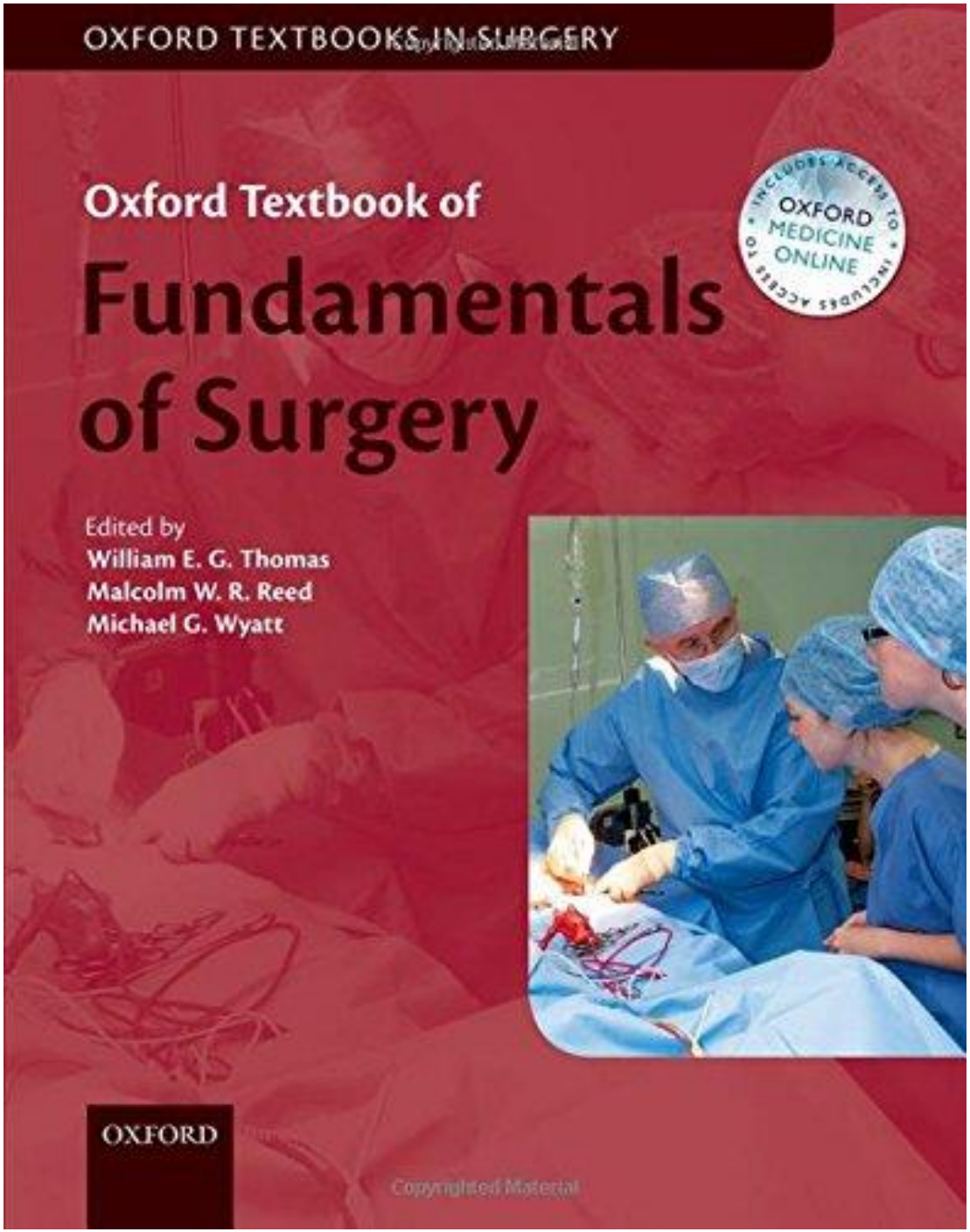


http://www.internationalfuturesforum.com/

Edinburgh Orthopaedic Trauma Unit

- Serves 800k in Lothian
- Per year
  - A&E 120k+ RIE
- Trauma Orthopaedic
  - 7k inpatients
  - 6k operations
  - 42k outpatients
  - > 1,000 hip fractures
  - 12 consultants
- Regional & military training
- National Trauma Centre
- Academic program
- International Trauma Symposium

http://www.ed.ac.uk/clinical-sciences/orthopaedics-trauma/clinical/trauma



Prof Chris Oliver
Section Editor Trauma:

- Multiple injury
- Skin Loss
- Burns
- Skeletal injury
- Conflict & Military
- Head injury
- Chest injury
- Abdominal injury
- Vascular injury

OUP
ISBN: 9780199665549

https://www.theguardian.com/environment/bike-blog/2013/jul/18/los-angeles-boston-united-states-rockies-bike-blog

Do 20mph speed limits reduce casualties and increase cycling, walking, and liveability in the general population?

- **National Institute Health Research – NIHR**
- **£890k grant**
- **Lead by**
  - Scottish Collaboration for Public Health Research & Policy
  - Physical Activity for Health Research Centre, The University of Edinburgh
  - Centre for Public Health, Queen's University Belfast
- **August 2020**
- **Prof Chris Oliver - Study Steering Committee Member**

http://www.isrctn.com/ISRCTN10200526

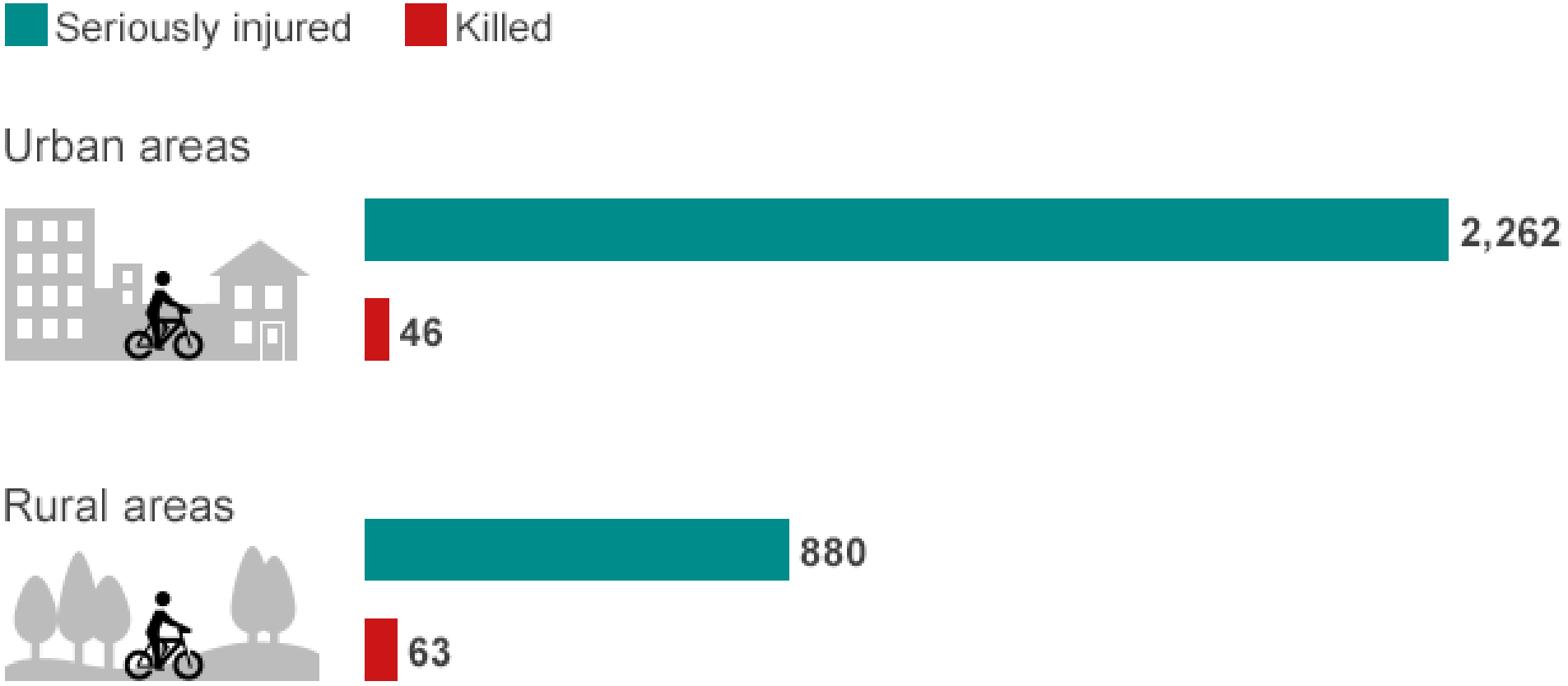
Some Cycling Safety Facts

- Life years gained due to the health & fitness benefits of cycling in Britain outweigh life-years lost through injuries by a factor of around 20:1
- 2011-2015, one cyclist was killed on Britain's roads for every 29 million miles travelled by cycle = 1,000 times around the world
- Unlikely to be killed cycling as walking
- UK has a good road safety record
- Cycle safety in is one of the poorest in Europe

Cycling UK (CTC)

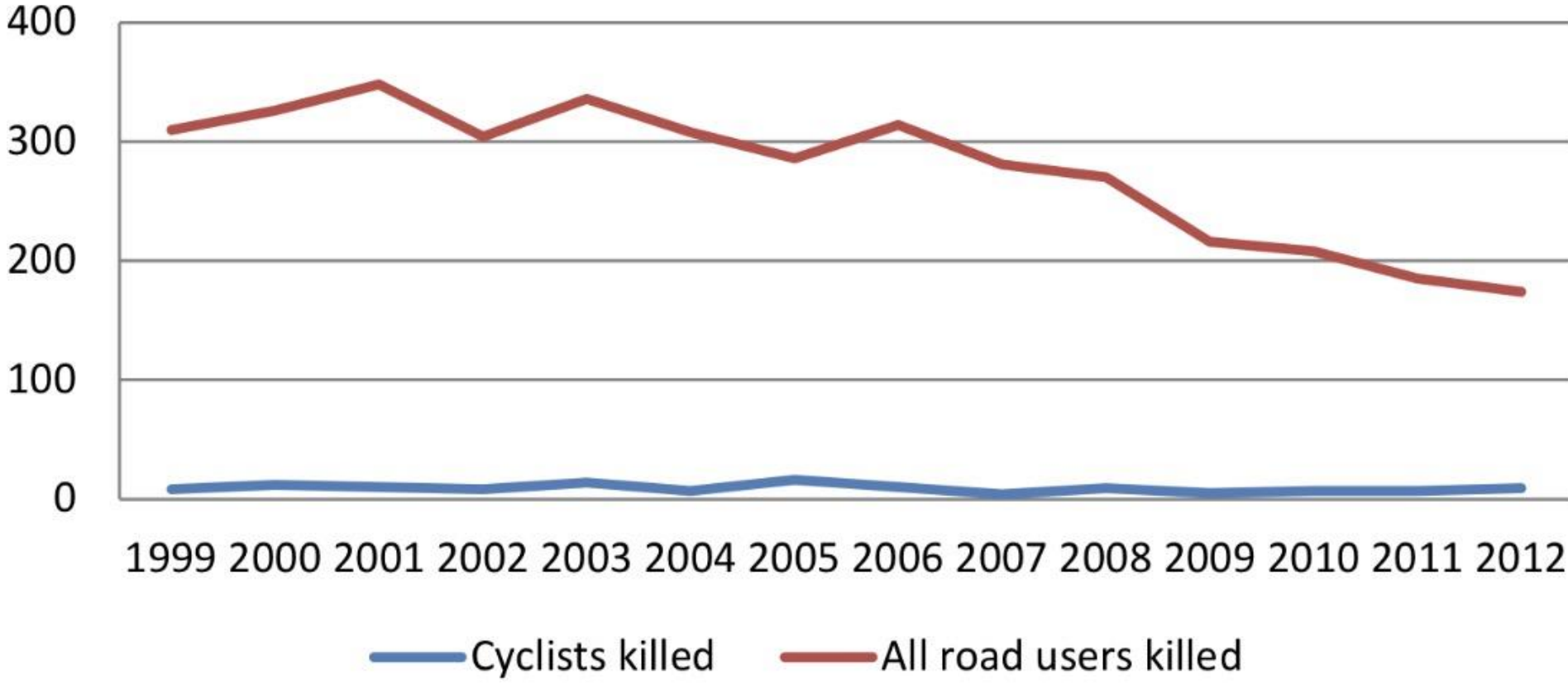

Cycling deaths in Great Britain
deaths/year
2,000
1,500
1,000
500
0
1930
40
50
60
70
80
90
2000
2010
Source: Department for Transport

Pedal cyclist casualties by severity and road type, 2013



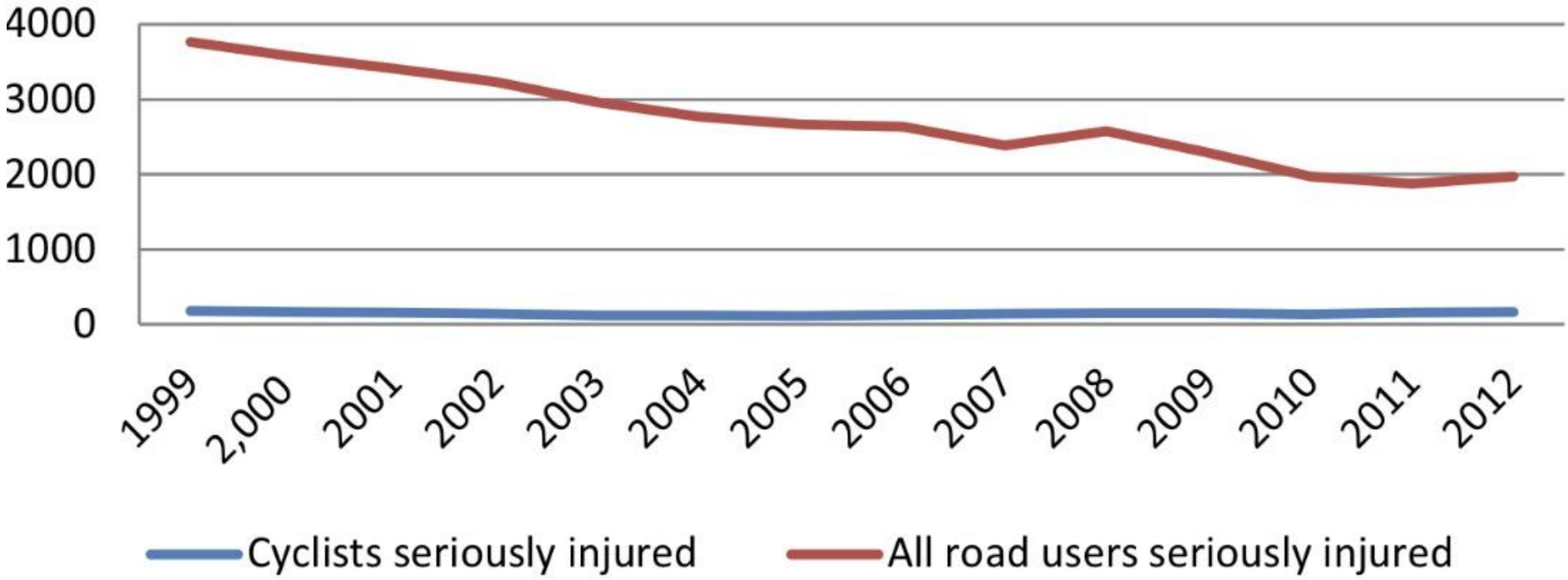
Source: Department for Transport

Chart 10: Annual number of cyclists and all road users killed in Scotland



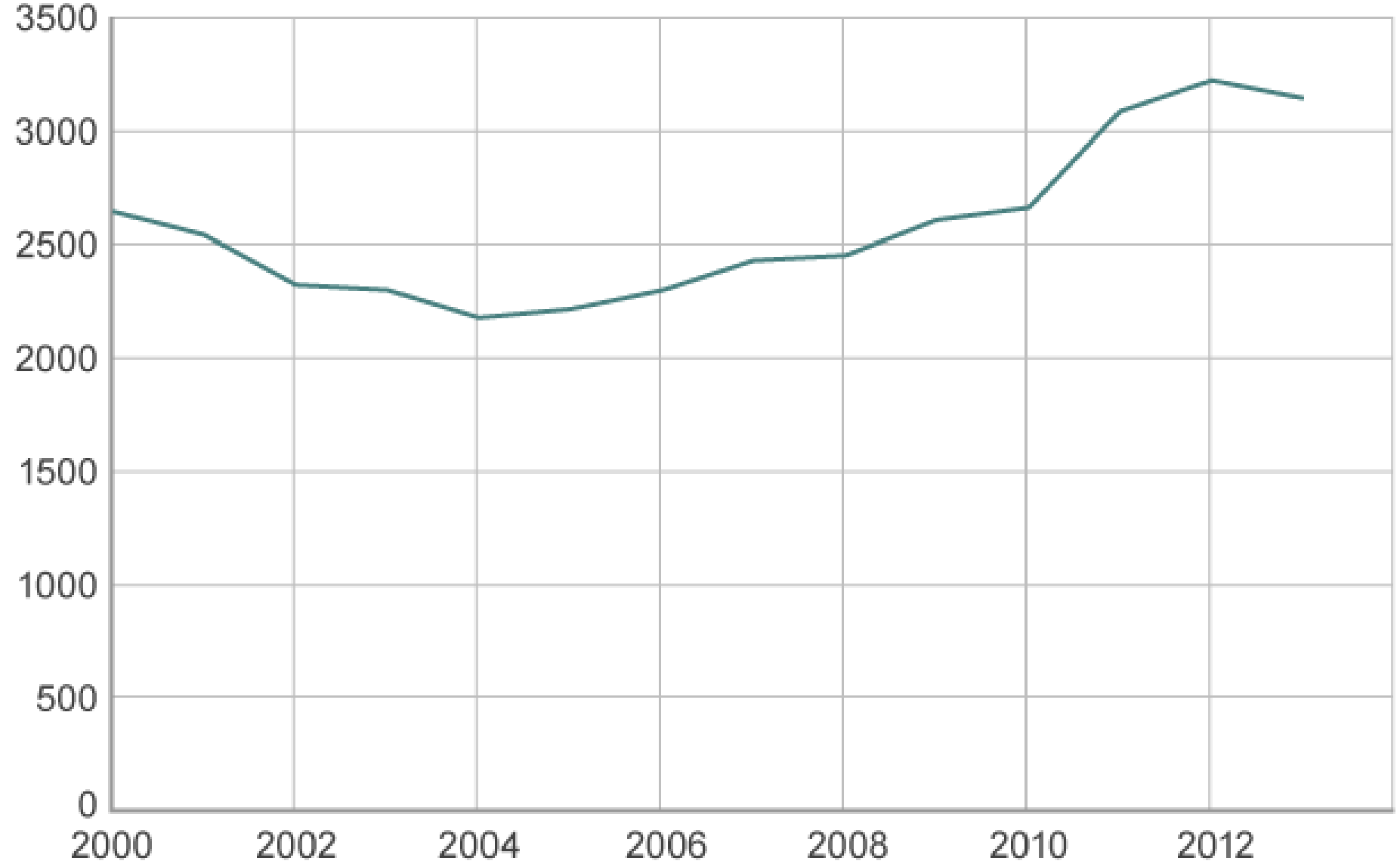
http://www.parliament.scot/ResearchBriefingsAndFactsheets/S4/SB_14-30.pdf

Chart 11: Annual number of cyclists/ all road users seriously injured in Scotland



http://www.parliament.scot/ResearchBriefingsAndFactsheets/S4/SB_14-30.pdf

Cyclists seriously injured in Great Britain



Source: Department for Transport

All Cycling injuries in Lothian PreTram

Cycling accounted for 11% of sports fractures (n=104).

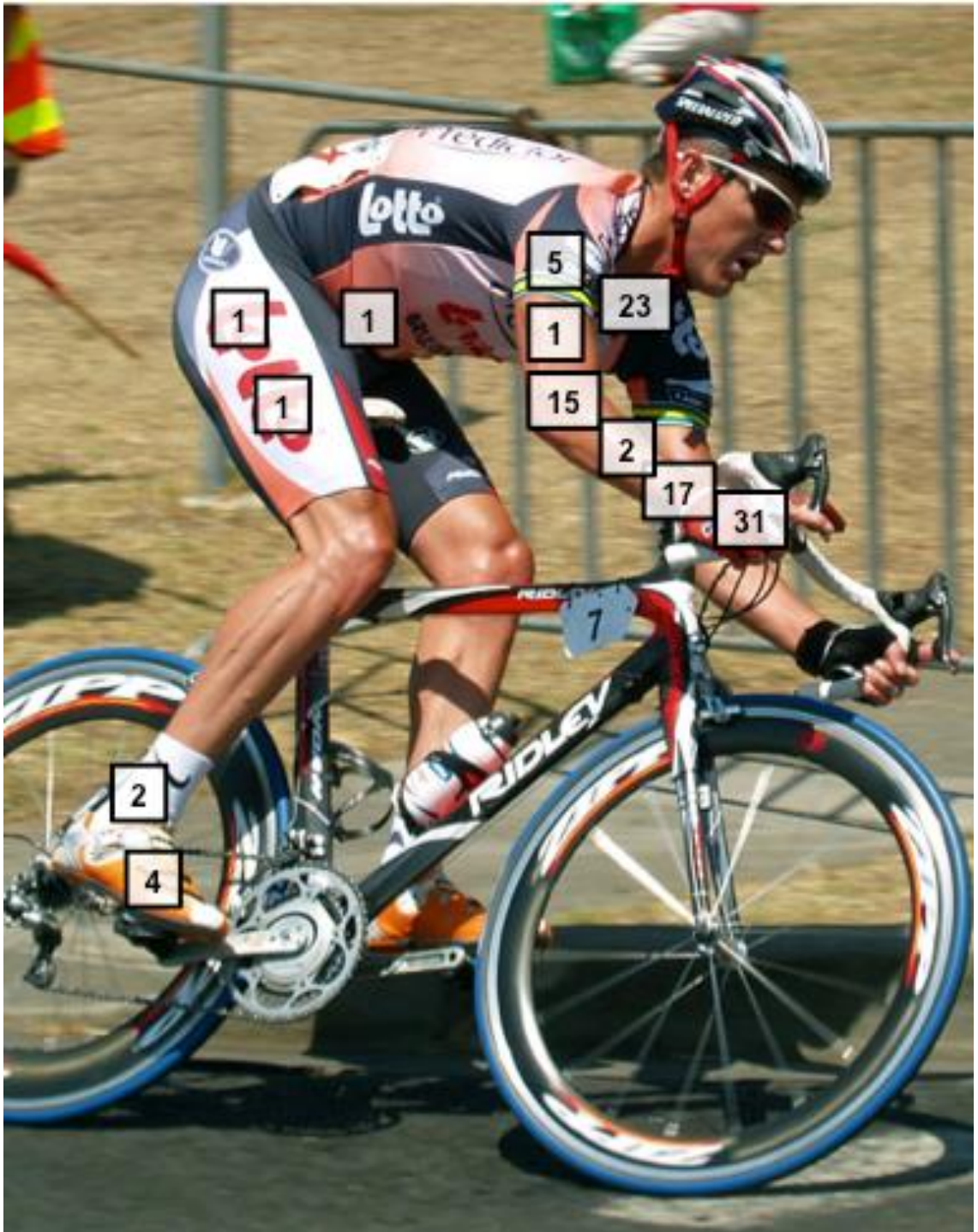
- Mountain Biking 73, Road 25, BMX 6

Mean Age: 31 years. 88% ♂ : 12% ♀

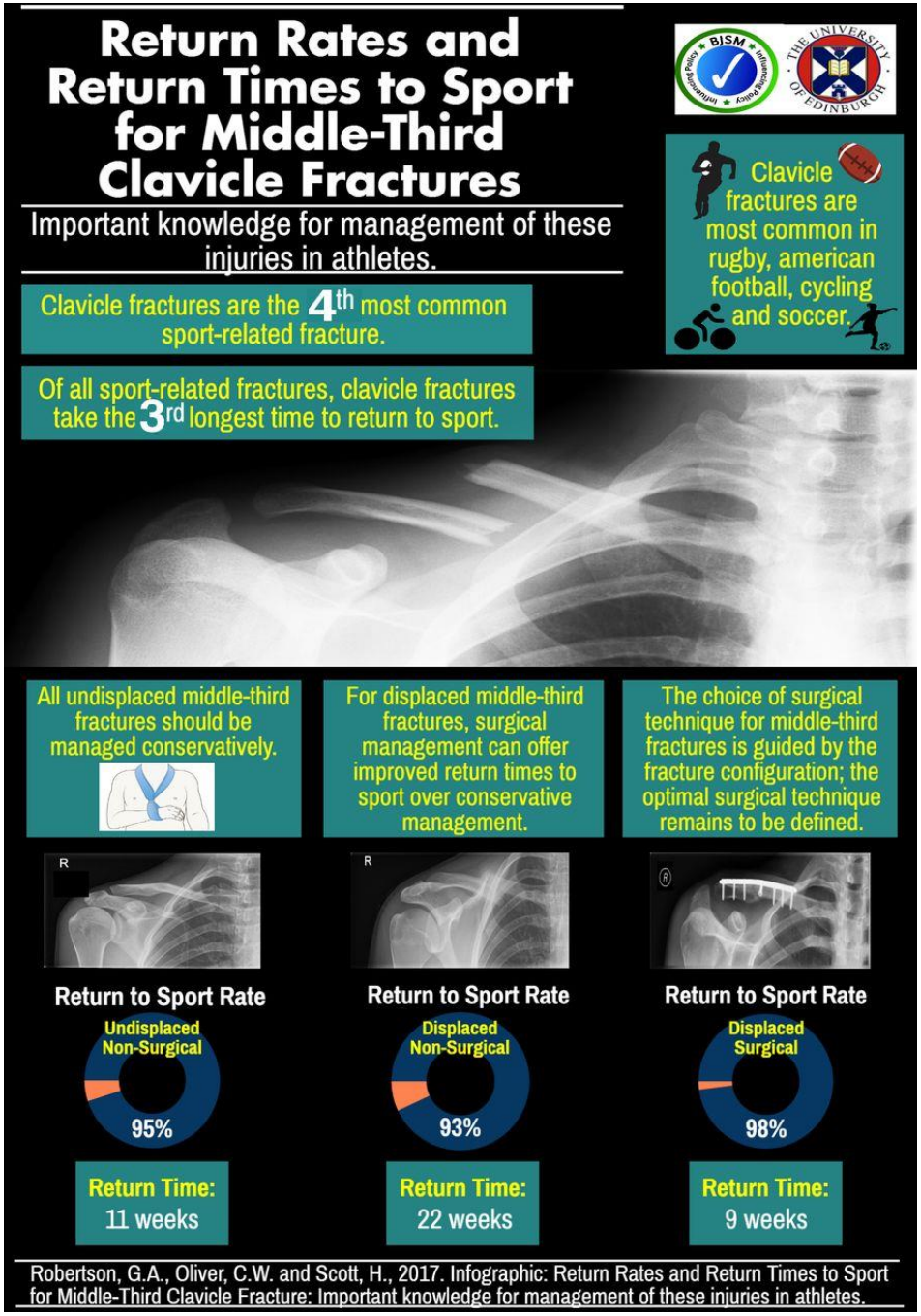
Upper Limb 91%: Lower Limb 8%: Axial 1%.

Commonest Upper Limb Fractures:
Clavicle (22%), Distal Radius (14%), Metacarpal (12%)
Proximal Radius (12%), Finger Phalanx (10%).

Commonest Lower Limb / Axial Fractures:
Toe Phalanx (2%), Ankle (1%), Pelvis (1%).



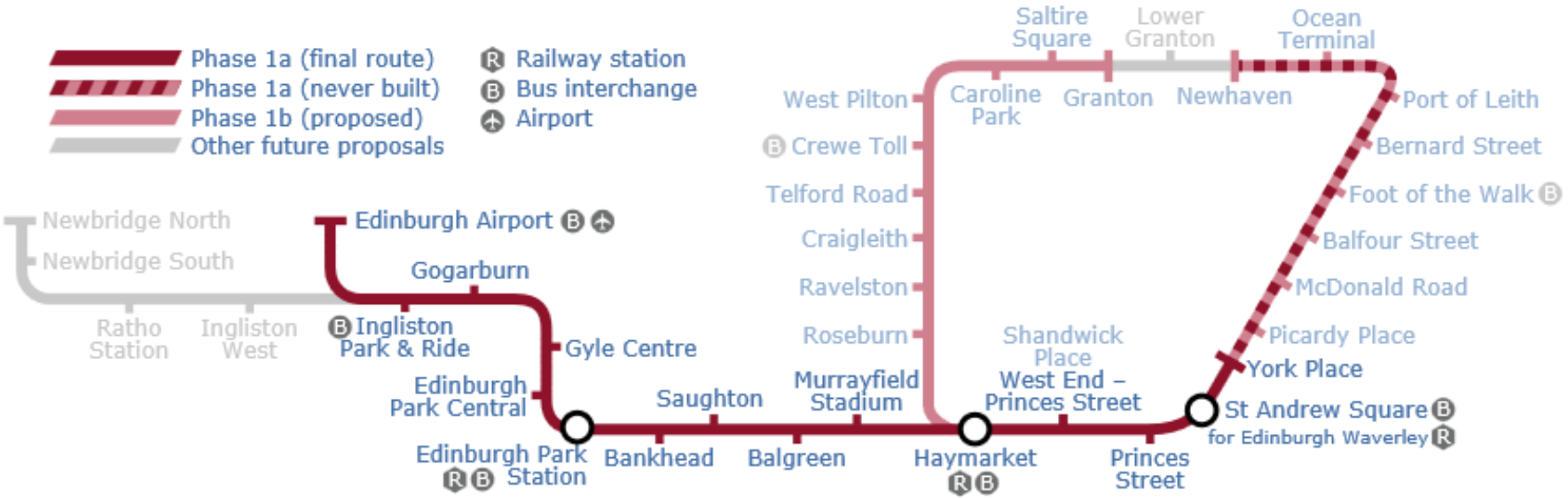
Greg Robertson EOTU



Greg Robertson, Hilary Scott, Chris Oliver

Br J Sports Med 2017
doi:10.1136/bjsports-2016-097445


TOPSHOP
TOPMAN



Edinburgh Tram Inquiry

http://www.edinburghtraminquiry.org/

Retrospective review Tram related Injuries

- 7 years
- 41.4 years +/- 16 years
- 24% weekends
- All to A&E in Lothian; RIE, SJH, WGH
- >1000 x-rays, 10 CT/MRI scans, blood tests
- 156 soft tissue injuries
- 64 fractures
- 29 operations
- Mean length of hospital stay 1.7days
- Economic impact unknown

Mechanism of cycling tram injuries

- 143 wheels caught in tram track
- 32 wheels slipped on tram track
- 1 collision with tram
- Forced by other vehicle to change path and forced towards tram track
- Pedestrians

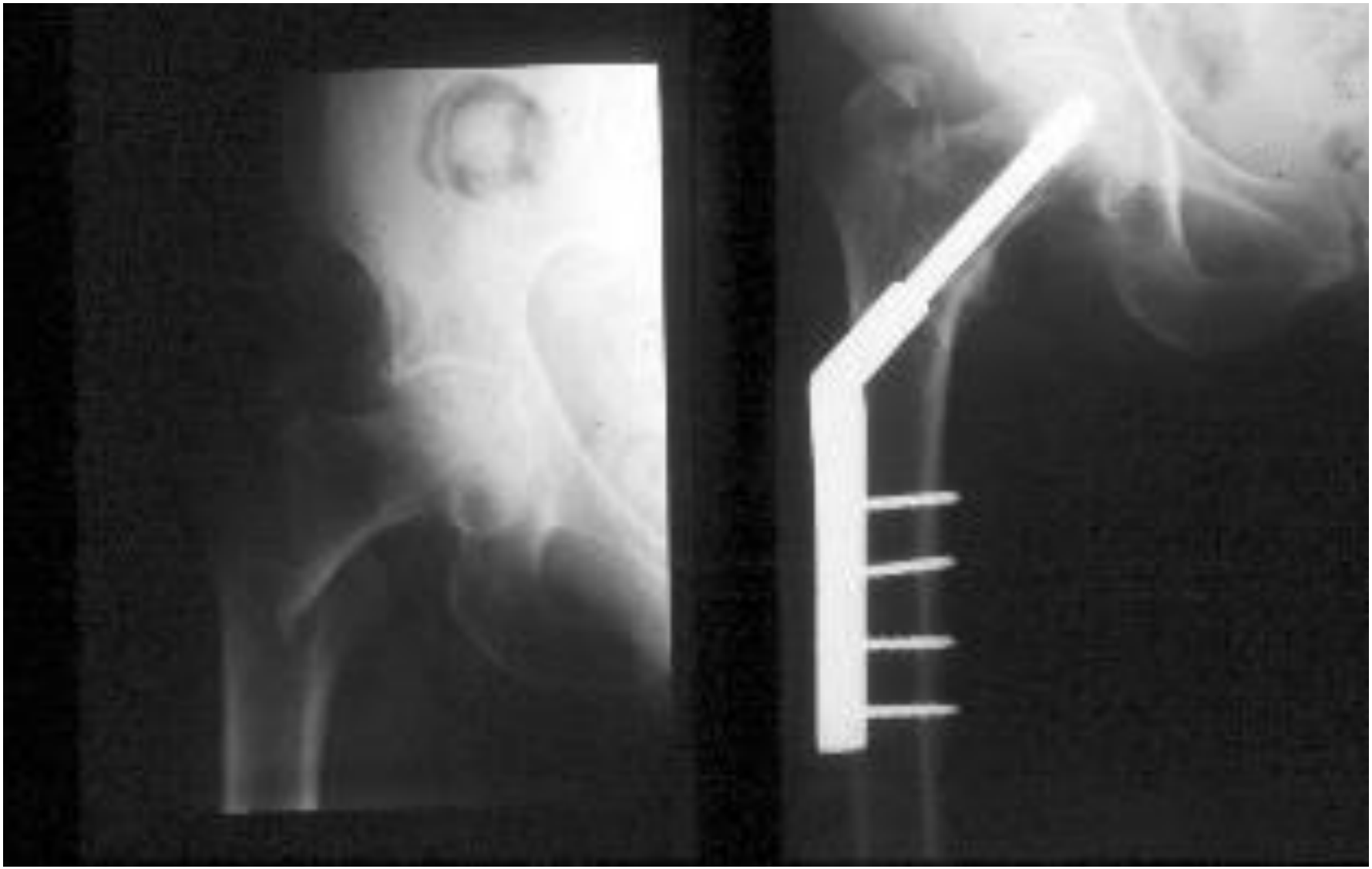
Tram related injuries Lothian Post Tram

Anatomical region	Soft tissue injury	Fracture
Head injury - minor	33	0
Head injury - serious	0	1
Thorax	5	0
Abdomen	4	0
Clavicle	0	4
Acromioclavicular joint	4	0
Proximal Humerus	15	4
Humeral shaft	0	2
Elbow	15	18
Forearm	2	1
Wrist	26	11
Hand	10	7
Finger	5	8
Hip	9	2
Thigh	2	0
Knee	21	2
Leg	2	0
Ankle	2	1
Foot	1	2
Toe	0	1
Total	156	64

Tram related injuries Lothian Post Tram

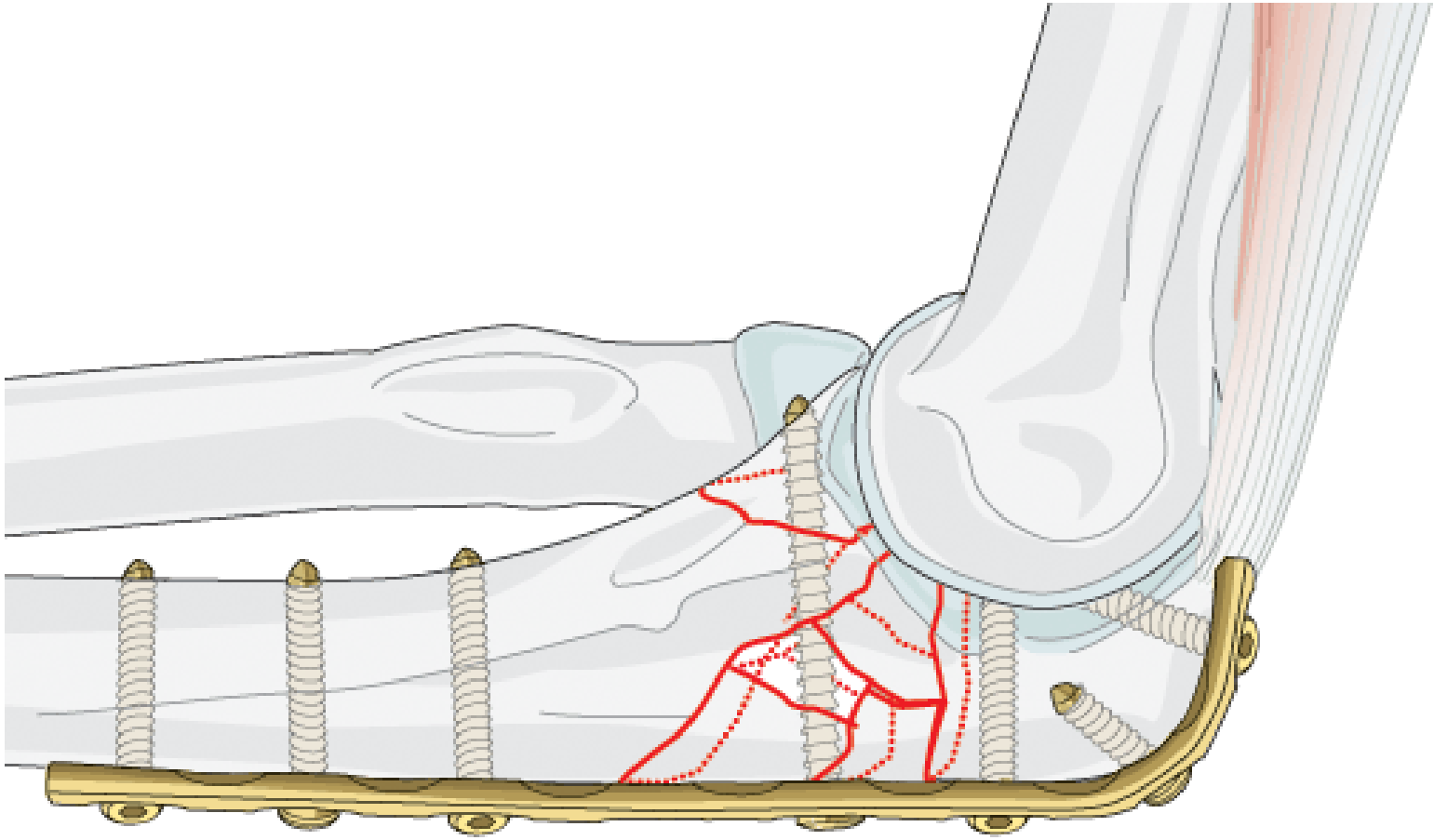
Procedure	Number
Dynamic Hip Screw	1
Cannulated Hip screws	1
Midfoot ORIF	1
Distal radius ORIF	6
Olecranon ORIF	2
Distal radius ex-fix	1
Phalanx ORIF	1
Distal Humerus ORIF	1
Emergency Carpal Tunnel Decompression	1
Rotator cuff repair	1
Nasal fracture MUA	1
Wound suturing in ED	12
Total	29

Hip fracture after tram cycling injury - Dynamic Hip Screw

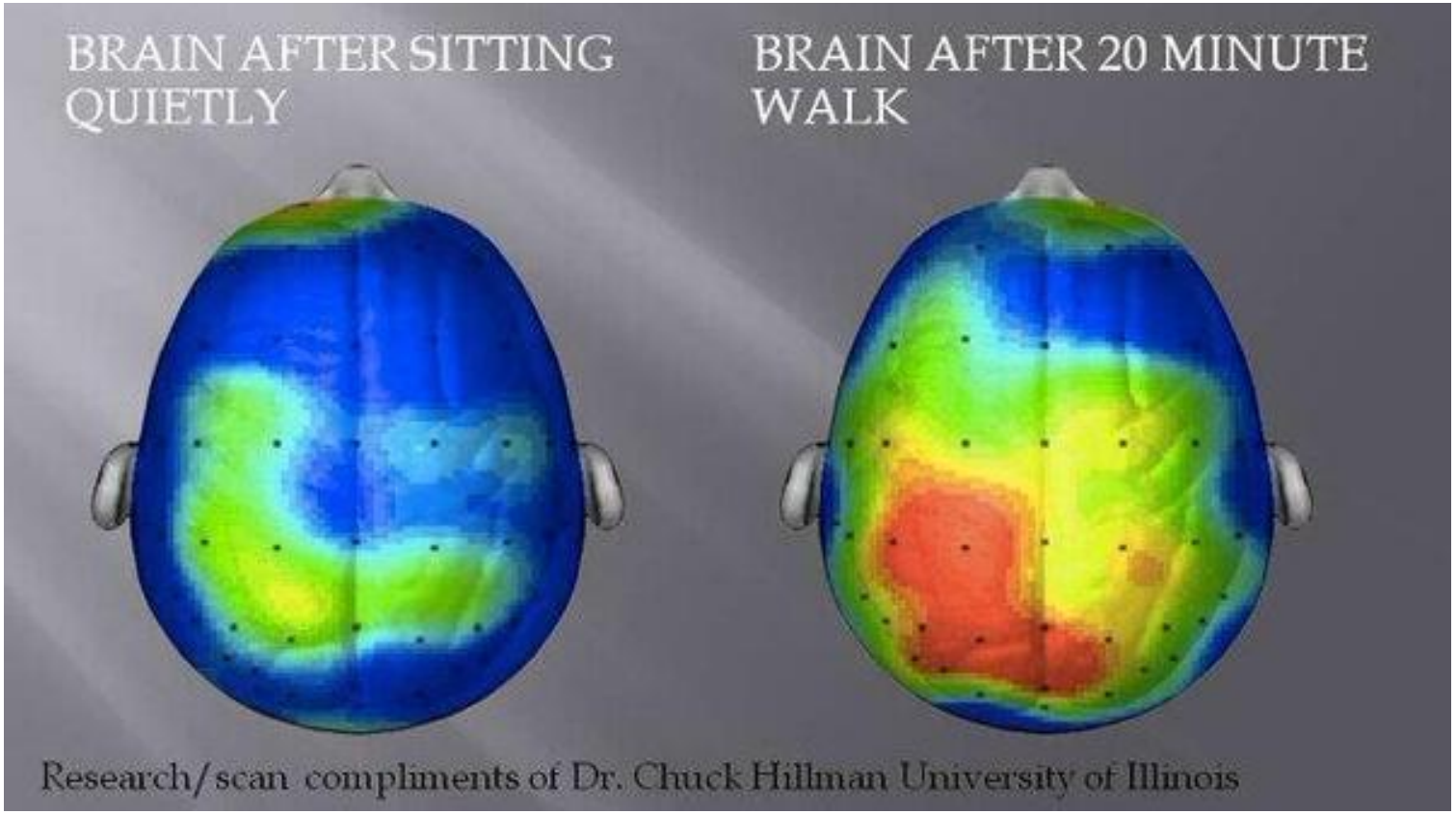


Representative images

Tram Injury Cycling - Complex elbow injuries



Professor
Physical Activity for Health



Sit Less

Walk More

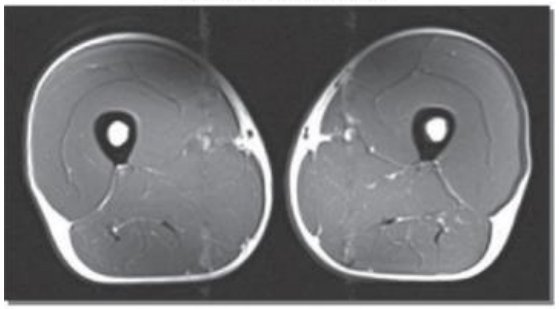
MRI Cross Sectional Leg Scans

40-year-old triathlete

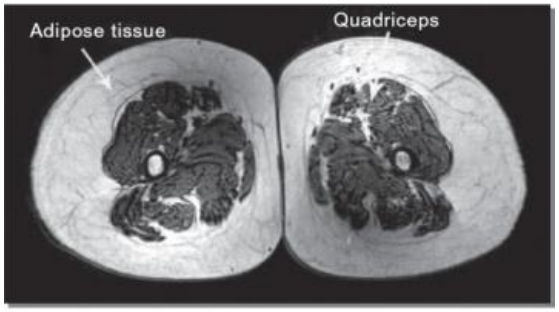
74-year-old sedentary man

70-year-old triathlete

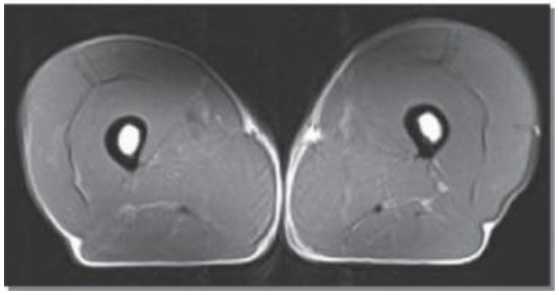
40-year-old triathlete



74-year-old sedentary man



70-year-old triathlete



Risk reduction associated with physical activity

Chronic condition	Risk reduction
All cause mortality	30% risk reduction
CVD, stroke	20-35% reduction
Diabetes	30-40% reduction
Hip fractures	36-68% reduction
Colon cancer	30% reduction
Breast cancer	20% reduction
Loss of function	30% reduction
Depression/dementia	20-30% reduction

C Schiphorst, A Murray, P Kelly, C Oliver, F Bull

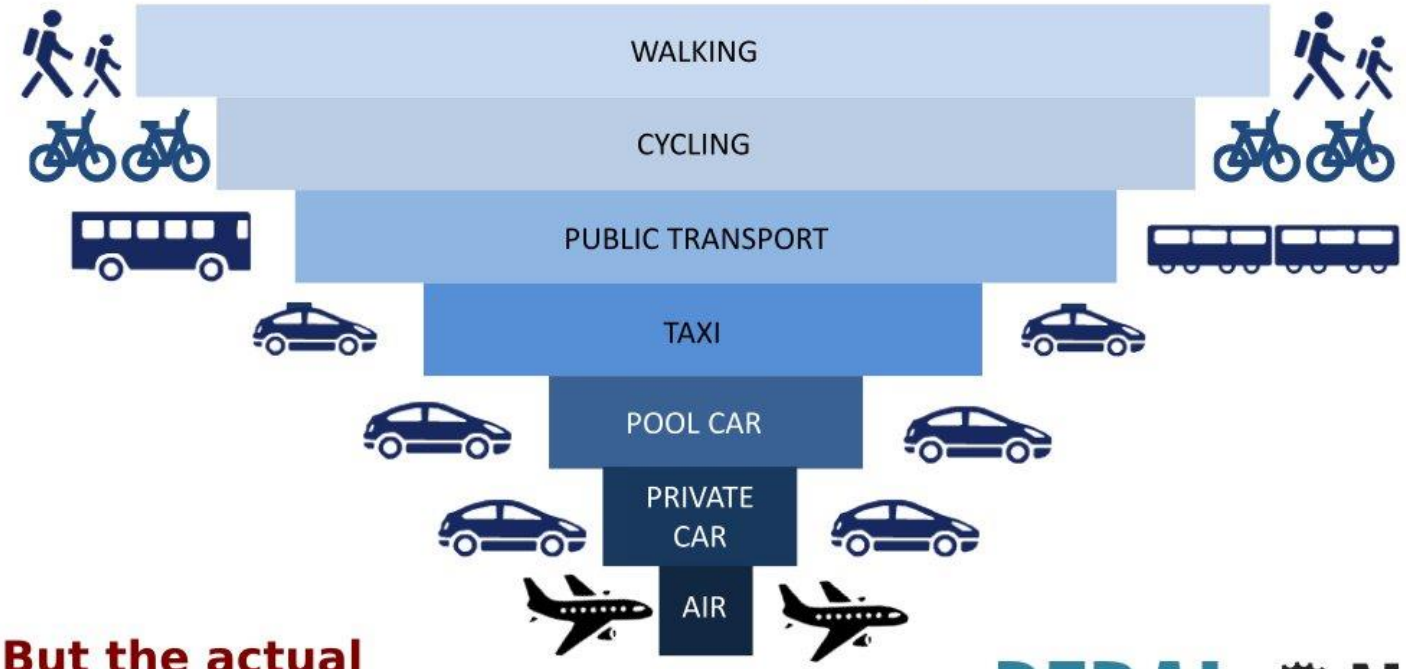
Br J Sports Med
doi:10.1136/bjsports-2016-096999

BJSM

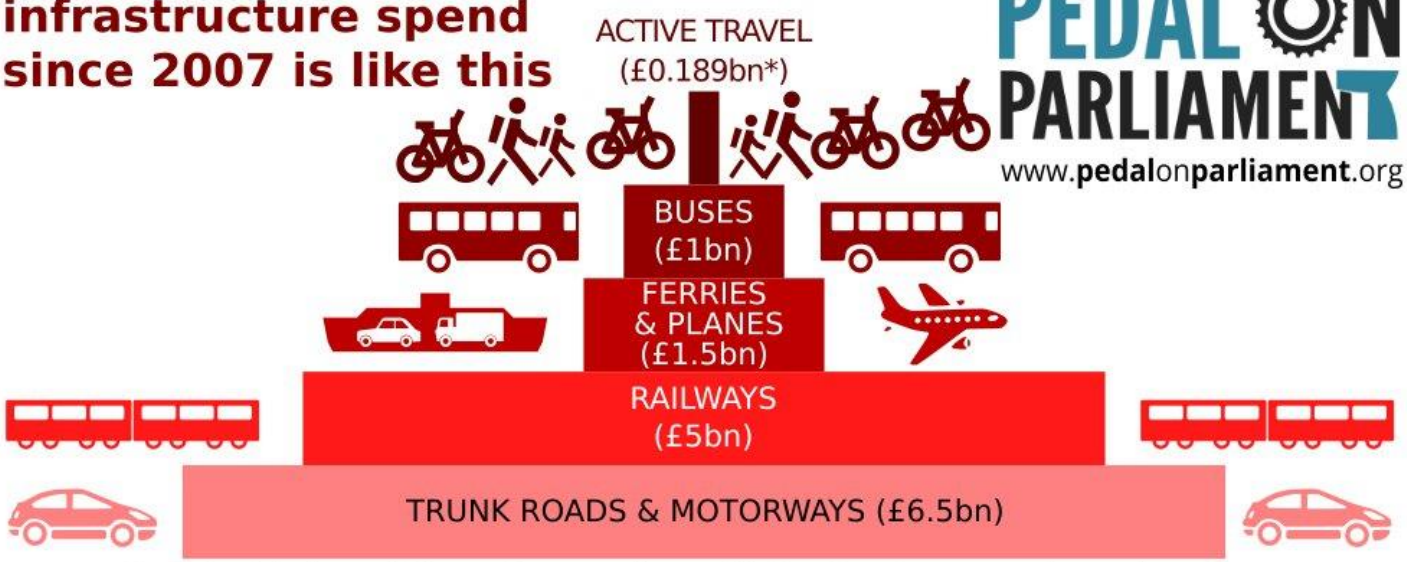
@PlayonPedals

7k preschool riding in Glasgow

The sustainable travel hierarchy looks like this



But the actual infrastructure spend since 2007 is like this



PEDAL ON PARLIAMENT

www.pedalonparliament.org

Sustainable travel hierarchy graphic and intrastructure spend numbers from *Scottish Government National Transport Strategy*, January 2016

* Active travel spend pro-rata for period 2011-15, which may be an over-estimate

World Health Organisation to develop Global Action Plan to Promote Physical Activity

http://blogs.bmj.com/bjsm/2017/05/22/world-health-organisation-develop-global-action-plan-promote-physical-activity/

Cyclist blaming

Cycling Action Plan for Scotland: 2017-2020
Transport Scotland

(... with added Zen :)

Cycle to work (SHS)

ZenBike UK

What to do?

Policy change

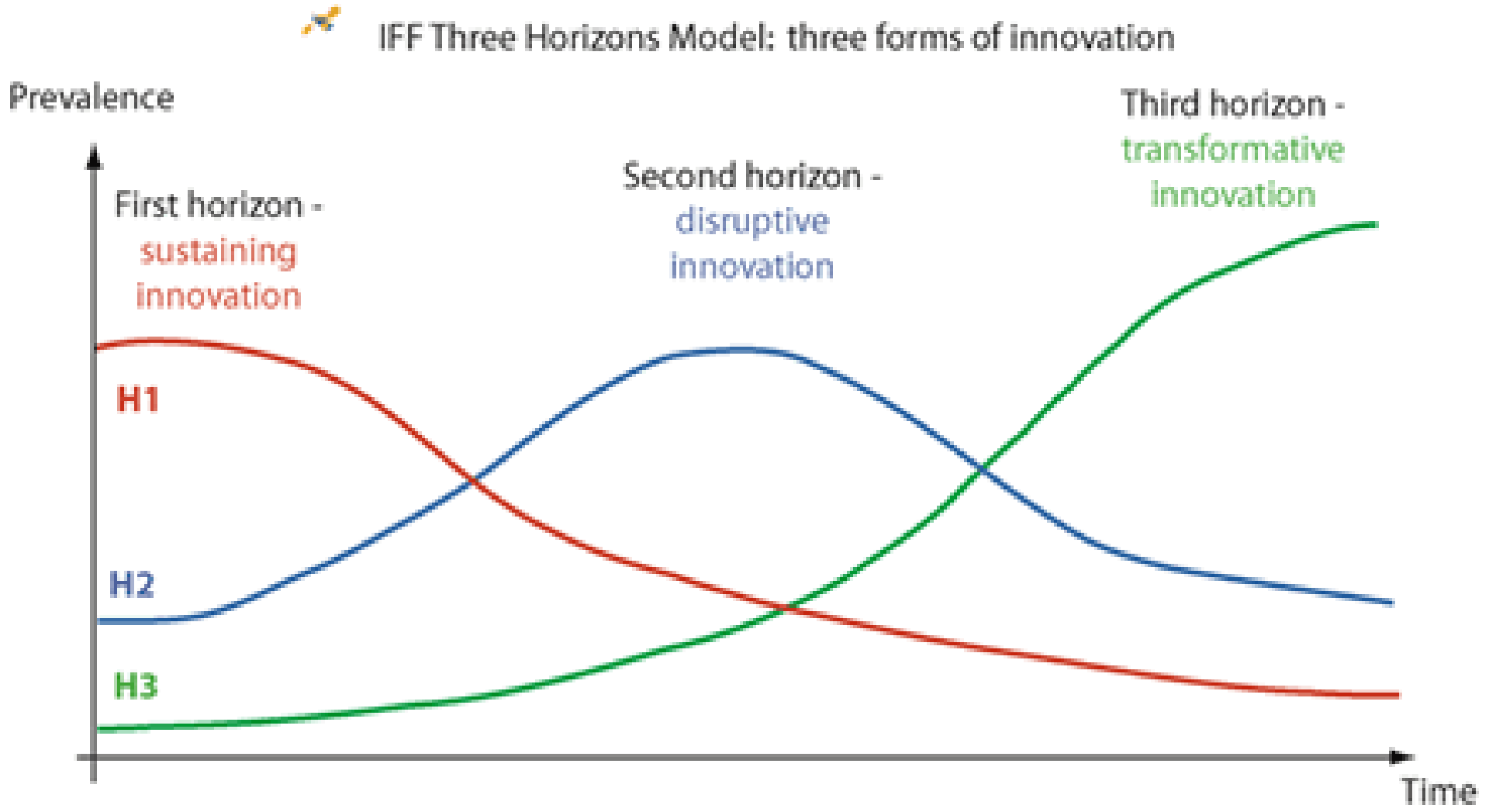
Cycling Action Plan

New Active Travel

Infrastructure

Reverse engineer

Shims



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