Increasing Cycling in a Safe Traffic System

Key messages from the OECD-ITF Working Group on Cycling Safety

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Outline

1. cycling benefits and disbenefits
2. policy design: safer cycling
3. bicycle safety measures
Fast, Flexible
Reliable
Crashes relative risk

Relative risk of death/km bicycle vs. car
14 UK
11 Switzerland
6 Norway
6 Netherlands

Relative risk of death/hr of travel:
UK: 4
Belgium: 1
% fatal bicycle crashes involving truck, bus, coach

33% Ireland
33% Denmark
25% Belgium
25% UK
20% Netherlands
20% France
12% Germany
11% Spain
4% Italy

International Transport Forum
Single bicycle crashes – e.g. with no crash opponent are significant and under-reported

Single bicycle crash involvement as % of all bicycle crash victims

- Flanders/Brussels: 87%
- Belgium: 73%
- Netherlands: ~75%
The elderly are especially vulnerable

% of all bicycle crash deaths 60yrs and older:

Japan: 70%
Korea: 65%
Italy: 57%
Netherlands: 55%
Denmark: 49%
France: 45%
UK: 21%
Crashes risk

11% of time in a junction

13 minutes

3.2 km
Crashes junction risk

3.2 km

junction share of fatal crashes

29% 36% 35%

EU Korea USA
Crashes

fatal (EU)
hour and month

absolute numbers

2005-2010, n=12 554
Fatal crashes (EU) hour and day

absolute numbers
2005-2010, n=12 554
Air pollution

Accounting for ventilatory effort, cyclists register 2 to 8 times more pollutant intake than car occupants.
Cycling, as a moderate physical activity can significantly reduce mortality and morbidity due to:

- Cardiovascular disease
- Type-2 diabetes
- Cancer (Colon, breast)
- Osteoporosis
- Depression

Impact greatest when 1st becoming active
on balance, the monetised benefits from improved health are up to 20x greater than the combined health impacts of crashes and exposure to air pollution.
Outline

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Many authorities cannot adequately assess whether or not policies improve safety.

Safety (crash rate) = $\frac{\text{crashes (\#)}}{\text{exposure (km, trips)}}$?
Police (official) records and hospital records do not concur.

Under-reporting is significant and widespread, especially for less severe injury crashes.

Austria bicycle injury crashes 2009:
5 495 (police)
28 200 (hospital)
37 000 (total, adjusted)
Netherlands: Cyclist serious injuries* (3 yr. avg.)

Registered number (Police)

1958

1458

-25%
Cyclist serious injuries* (3 yr. avg.)

- **Actual number (Police and hospital)**
  - 2000: 7276
  - 2009: 9824
  - Increase: +35%

- **Registered number (Police)**
  - 2000: 1958
  - 2009: 1458
  - Decrease: -25%
Making cyclists safe in the current traffic system?
Making the system safe for (new and existing) cyclists?
Safe System

Functionality: Road design matches desired usage

Homogeneity: Speed management, Separation

Predictability: Avoid unexpected situations

Forgivingness: Minimise crash outcomes
Safe System

Functionality: Road design matches desired usage
Safe System

Homogeneity: Speed management
Homogeneity: Separation: essential to manage crash risks at intersections or high traffic situations.
Safe System

Predictability: Avoid unexpected situations
Safe System

Forgivingness: Minimise crash outcomes
Do policies that increase the number of cyclists lead to more crashes?
Do policies that increase the number of cyclists lead to more crashes?
Safety per km, CPH, DK

Bicycle kilometres (weekday)

Cyclist serious injuries and fatalities per km


1.0

1.2

0.3
Safety CPH DK

Bicycle kilometres (weekday)

Cyclist serious injuries and fatalities per km

Kilometres of infrastructure

- Cycling tracks
- Cycling lanes
- Green cycle routes

<table>
<thead>
<tr>
<th>Year</th>
<th>Cycling tracks</th>
<th>Cycling lanes</th>
<th>Green cycle routes</th>
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<tr>
<td>1996</td>
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<tr>
<td>2010</td>
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</table>

Copenhagen, DK Tracks & Lanes
Outline

1. cycling benefits and disbenefits
2. policy design: safer cycling
3. Safety and perceived safety
Continuous cycle network of high standard on routes and at intersections, improve cyclist safety, security and accessibility, and is thus an important basis for increasing bicycle use.
Improved safety but perceived as unsafe
Improved safety but perceived as unsafe
Junction nearside turning bike box

Perceived as safe
Perceived as safe, but conflicts remain
Key messages

• **Health benefits** of cycling far outweigh negative health impacts.

• **Better data** on crashes and activity needed.

• Apply “**Safe system**” principles for cycle safety.

• **Speed management** essential, **separation** is critical in certain areas especially for increasing **perceived safety** for new cyclists.

• **Top-level support** and coordination between cycling and other policies helps deliver more cycling and better safety.
Thank you
Junction nearside turning truck mirrors
Not directly or indirectly visible at ground level

Windscreen direct view

Plain rear view mirror

Junction nearside turning truck mirrors
Additional and extended Nearside and front mirrors

Not directly or indirectly visible at ground level