

Cycling in the Netherlands and its positive effect on public health

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- Comparison of means of transportation
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Cycling in Netherlands (=NL) today

- NL have a population of 17 million people today and almost 23 million bicycles
- One quarter of all journeys are made by bicycle in NL
- Road safety is among the best in the world, 1.1 Dutch bikers were involved in a fatal accident per 100 million miles traveled (2002-2005)
- In Amsterdam 490,000 cyclists cycle 2 million km per day (2012)
- There are 35,000km of dedicated bicycle paths compared to 140,000km road network (partly shared)

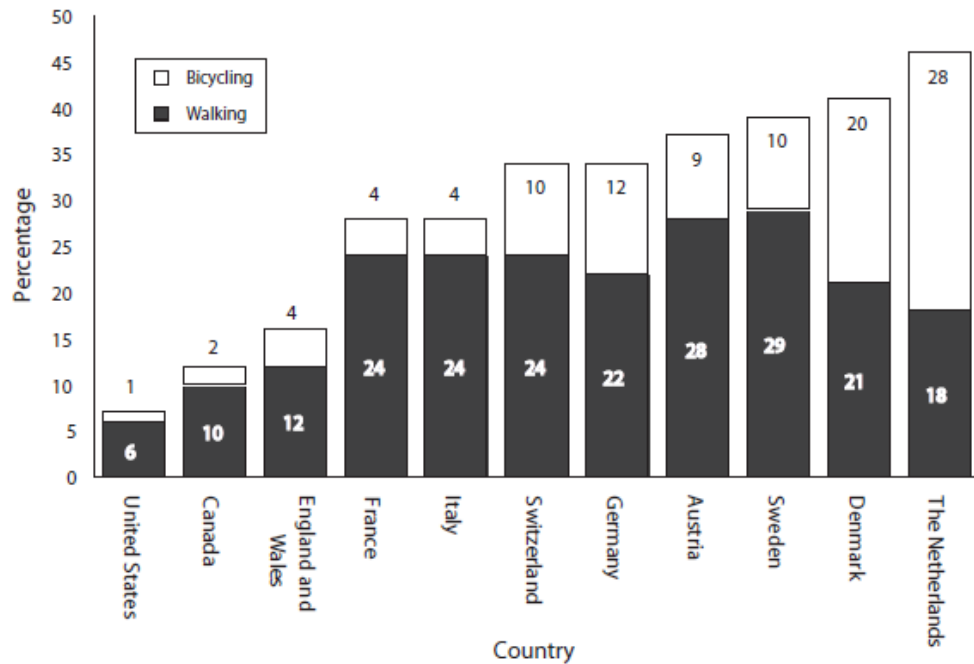
Brief history

- 1890 first bike paths were build in NL
- 1950 cars starting to become the dominant means of transport in NL with continuously increasing numbers
- At this time bicycle paths were a measure to get cyclists off the road to make more space for cars
- 1970 high number of fatal traffic accidents, especially involving children, caused public outrage
- 1973 the oil crisis illustrated the dependence on oil

History II

- Grassroot movement „Stop de Kindermoord“ achieved to turn around policies.
- 1990 strict liability for motor vehicle accidents (If the cyclist didn't intentionally cause the accident the motor-vehicle drivers insurance has to cover all damages)
- 1990 needs for cyclists were taken into account in urban planning (cyclists and pedestrians were prioritized over car traffic in living streets)
- Motor-vehicle drivers are trained to think about cyclists in their environment
- School children of 12y do „Verkeersdiploma“ as training. 75% of secondary school children ride by bike to school

Comparing the means of transportation in urban areas

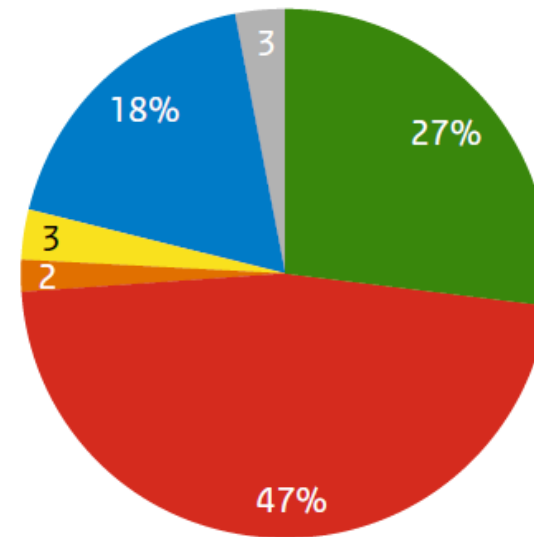


Note. Modal split distributions for different countries are not fully comparable owing to differences in trip definitions, survey methodologies, and urban area boundaries. The distributions given here are intended to show the approximate differences among countries and should not be used for exact comparisons.

Source. Transportation Research Board,²⁹ Table 2-2, p. 30.

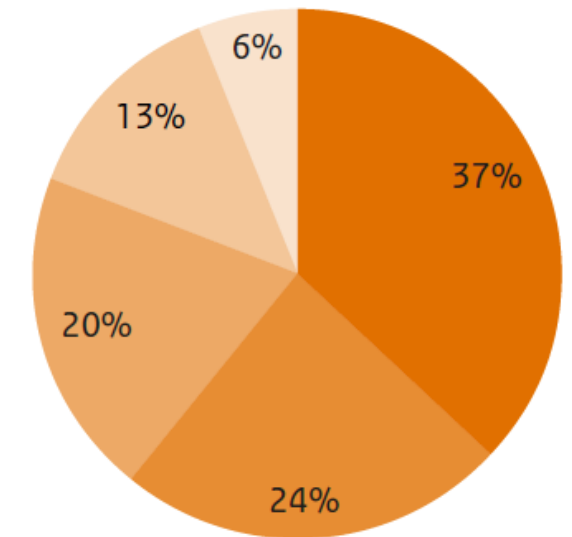
FIGURE 1—Percentage of trips in urban areas made by walking and bicycling in North America and Europe, 1995.

Distribution of trips by mode of travel, 2016



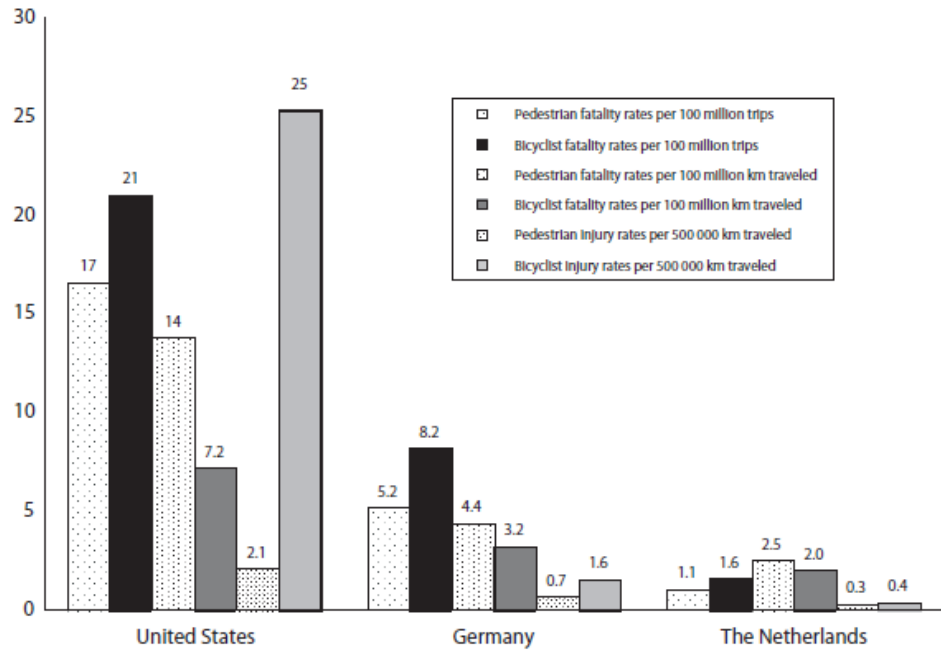
- Bicycle
- Car
- Train
- Bus, tram, subway
- Walking
- Other

Distribution of bicycle kilometres by purpose, 2016



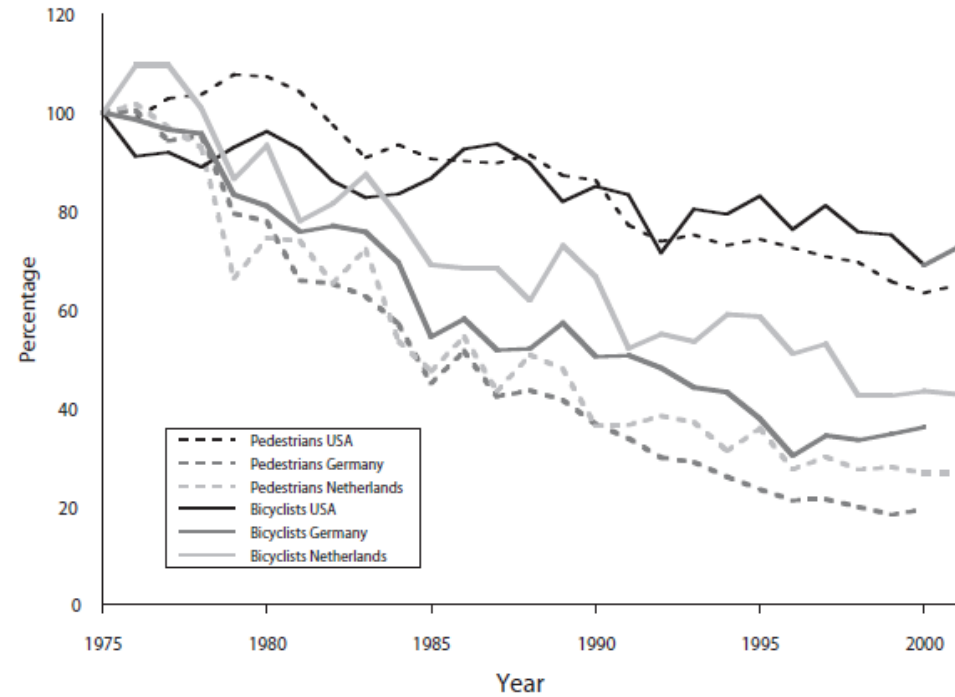
- Leisure
- Work
- Education
- Shopping
- Other

Comparing road safety



Source. US Department of Transportation^{11,12}; Centers for Disease Control and Prevention¹³; German Institute of Economic Research¹⁶; German Federal Statistical Office¹⁷; German Federal Traffic Institute¹⁸; Statistics Netherlands⁹; and Dutch Ministry for Transport, Public Works and Water Management.²⁰

FIGURE 3—Pedestrian and bicycling fatality rates and nonfatal injury rates in the United States, Germany, and The Netherlands, 2000.



Source. US Department of Transportation¹²; German Federal Statistical Office¹⁷; German Federal Traffic Institute¹⁸; Statistics Netherlands¹⁹; and Dutch Ministry for Transport, Public Works and Water Management.²⁰

FIGURE 4—Trends in pedestrian and bicycling fatalities in the United States, Germany, and The Netherlands, 1975–2001 (1975 = 100%).

Comparison to the Czech Republic

- High number of fatalities - 68 cyclists killed in 2015
- 9% of traffic fatalities are cyclists (1993-2011)
- 4.5 times greater risk of being killed in a traffic accident than in the NL
- Fatalities usually due to absence of helmet
- Total number of bicycles estimated at 4 million
- Factors influencing road safety in CZR:
 - Too little lateral clearance between cyclist and motor-vehicle
 - Poor quality of roads or cycle paths
 - Cycling network not properly interlinked

Why it is practical to ride a bike in NL

- Safe, fast and reliable due to dedicated cycling highways, bridges and good cycling ways
- Easy possibilities to lock a bicycle virtually everywhere
- Good integration with railway and public transport system makes cycling suitable for longdistance travel in NL
- The ministry of transport hopes to further increase usability of cycling by integrating E-bikes into the infrastructure



Economical benefits of cycling

- Annual cost of riding a bike is only 300€ compared to annual 8500€ for a car
- Riding a bike yields a social benefit of 0.68€ per Km while cars and buses cost 0.37€ and 0.29€ per Km traveled
- Cyclists invest 3X more in local economy, they take shorter but more frequent shopping trips

Environmental benefits

- Biking saves 0.2 g of Nox, 150g of CO₂ and 0.01g of particulate matter per km
- Half of passenger car trips are shorter than 7.5 km, one third is shorter than 5 km
- Replacing trips shorter than 7.5 km will save 2.0 megatons of CO₂, 2.6 kilotons of NO_x and 0.13 kilotons of particulate matter annually
- Cycling improves public space, a moving car takes up 28x the space of a bicycle, a parked car takes up 10x the space of a parked bicycle

Health benefits

- Cycling 30min per day is equivalent to the recommended weekly physical activity
- Cycling prolongs life-expectancy by 3-14 month
- Cycling to work everyday reduces risk of serious disease (-52% CV diseases, -40% Cancer)
- Cycling is effective in preventing obesity and type 2 DM

Effects on mental health

- 59% of all cyclists associate cycling with joy, only 2% dislike it while driving a car to work is associated with stress
- Regular physical activity is known to prevent depression
- Cycling improves quality of life by increasing independence and flexibility.
- If a good infrastructure is given, cycling is convenient, enjoyable and reliable
- Especially great effect on population over 65y

ECF European agenda

- Cycling has become a fast growing market throughout the world
- Pan European Masterplan for cycling (jointly managed by WHO and UN) consults countries on urban planning
- Sweden: 125million € budget which includes 25% subsidy for all E-bike sales until 2020
- Italy: All political groups agreed on the importance of cycling mobility
- France: French minister of transportation announced to FUB a new ambitious cycling plan
- Germany: Saved a 25million € budget for building cycling highways
- NL: 100million € for cycling infrastructure and parking near railway stations.





Sources

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