



BICYCLE RESEARCH REPORT NO. 2

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SAFETY - AN ACHILLES HEEL FOR CYCLING

- The Key Facts** People are often discouraged from cycling by policies based on the false assumption that it is dangerous. Research in Denmark has now shown that cycling saves far more lives in the heart attacks it avoids than it loses in road accidents to cyclists.
- Contents** It is often wrongly assumed that cycling is more dangerous than other transport modes. It is true that cyclists more often sustain slight or moderate injuries in traffic than motorists, but on the other hand their risk of being killed is - in terms of traffic hours - lower than for car users.
- Statistics, if wrongly interpreted, also lead to false assumptions in discussions about cycleways. Thus numerous accidents go unrecorded by the police who often only analyse individual consequences of accidents. Opponents of new cycleways are quick to point to the increase in cycle accidents on them after they are built - but new cycleways open up potential new developments. It is important, therefore, to evaluate the effects of increased cycle use and the relief this affords to motor traffic.
- An especially strong point is the effect of cycling on health, for example in bringing down the figures for heart attacks. A comparative study in Denmark for 1988 shows that improved health has saved at least twelve times as many years of life as those lost in cycle accidents. Other effects on health such as environmental improvements were not included in the study.
- If compulsory helmets are brought in, as the Australians and Americans are considering, and as a result fewer people ride bicycles, the effects on health will probably be less than would otherwise be expected. If compulsory helmets are introduced in Denmark and, as estimated, only 10% fewer Danes switch to other transport modes, the expected drop in head-injury figures would be outweighed by the corresponding rise in the heart-attack rate alone.
- Title** "Safety - An Achilles' Heel for Cycling" (in English). Paper submitted to the 4th Velo City Conference, Copenhagen 21/23.08.89



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ABSTRACT

Cycling is generally considered being unsafe compared to other means of transport.

The current knowledge on the safety of cycling often does not take into account the number of cyclists, thus leading to wrong conclusions. Also, the representation of cyclists in the statistics is very sparse, having only about 7% of the total number of injured.

While having a much greater risk than the motorist of being light and medium injured by traffic accidents, the risk of being killed as a cyclist is however, when the time spent in the traffic is used as a measure, less than the risk for a car user.

Several methods have been developed to calculate the benefits of the motor traffic. For the cycle traffic similar methods have not been used, leading to general misunderstanding, that cycling is neither safe or beneficial for the traffic economy, compared to other means of transport.

Development of methods calculating the benefits of the cycle traffic, under here the increased mobility of the non-motorised groups, the improved urban environment and the increased health by cycling, are necessary.

By taking into consideration the general risk of living, including the increased risk of certain diseases induced by inactivity, it can be calculated, that cycling is a far safer means of transport than trains, buses and cars.

Thus, alone by setting up the relevant figures for the improvement of health gained by cycling, conclusions opposite to the traditional ones on safety are gained.

This should not serve as an argument for not making the traffic conditions safer for cyclists, but as an argument against not using the bicycle or campaigning for the bicycle as long as the conditions are not better than at present.

Cycle helmets is often proposed as a way to increase safety for cyclists. Being very unattractive to the general attitude of cycling as a nice and normal behavior in Denmark, the helmets should be introduced with the greatest care. Aggressive campaigns for helmets, making the cyclists believe that cycling is very dangerous, will have the adverse effect of intended, making fewer use the bicycle and thereby increasing the overall risk of living. Attempts to make the helmet compulsory must be most strongly dissuaded by the same argument.



Epidemiological studies have shown, that physical exercise, by lowering the risk of coronary heart disease (heart attack), as a mean did increase the length of life by a group of persons by 1-2 or even more hours per hour of physical exercise during their lifetime (ref 13). Cycling is an example of such physical exercise. Quite often cycling is the alternative to physical inactivity. 42% of the population regularly take exercise, and 29% regularly use the bicycle (ref 17), indicating that this is the case.

A rough calculation on the health gained by cycling in Denmark can thus be made as follows. Take the number of kilometres annually travelled by bicycle. This figure in Denmark is 5.6 billion. Given a mean speed of 15 km/hour this will require a time of 373 million hours equal to 43,000 years. Even if we take the lowest figure (1 extra hour of life per hour of cycling) these 43,000 years equals 600 full lifetimes (70 years each).

81 cyclists were killed in Denmark in 1988. This will at maximum represent 50 lost lifetimes, taking the ages of the killed cyclists into account.

A very simple calculation now can be made concerning the effect of cycling in Denmark. It is:

General Risk by Cycling in Denmark

Number of lifetimes gained	600
Number of lifetimes lost	50
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Net result	550

It is seen, that the health aspect is more than ten times as important than the safety aspect, and that there is an enormous net positive effect of cycling.

Of course also the non-fatal injuries could be taken into account. This will, lead to comparisons of economical nature, but taking the factor 34 used elsewhere and the number of injured cyclists of about 2.000, it will only about double the figure of lost lifetimes, still leaving a clearly positive net-effect of cycling.