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Summary:

Walking or Cycling?

Facts about Extent, Safety and Environmental Consequences

The Ministry of Environment needed knowledge of facts to prepare an inter-departmental "focus on cycling" in the year 2000. In this report, the Institute of Transport Economics has collected a large part of the information on walking and cycling in Norway and abroad. The information comprises the extent of walking and cycling, risk and traffic safety for pedestrians and cyclists and the environmental gains that would be achieved if car traffic were replaced by walking or cycling.

Actual data on walking and cycling

Increased availability - less use

81 per cent of the population between 13 and 74 years owned or had access to a bicycle in 1998. The percentage of the population owning or having access to a bicycle has increased steadily since the 1960s and is currently higher than ever.

The availability of bicycles is fairly equal among different sections of the population but:

- is highest for people younger than 20 years
- is lowest for people older than 67 years and for single people
- seems to increase with increasing income.

Despite progressively more people having access to a bicycle, the use of bicycles has decreased.

Every fourth journey is a walking or cycling trip

In 1998, 25 per cent of journeys were made on foot or by bicycle, 19 per cent were walking trips and 6 per cent cycling trips. The percentage of journeys made by walking or cycling has decreased from the1980s until now, with the largest decrease in the 1980s.

In Norway conditions are more favourable for cycling during the summer than during the winter. During the summer 9 per cent of journeys are made by bicycle as compared with 2 per cent during the winter.

Walking and cycling trips are both a means of transport and a leisure activity. If one walks or cycles with the intention of getting from one place to another it is regarded as transport, but it is a leisure activity when walking or cycling in itself is the purpose.

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Walking and cycling trips are short trips

70 per cent walking trips and approximately half of cycle trips are less than 2 kilometres. On the average:

- a cycle trip is 3.0 kilometres long and lasts for 14.5 minutes
- a walking trip is 1.8 kilometres long and lasts for 20.7 minutes
- a trip as a car driver is 12.9 kilometres long and lasts for 16.6 minutes

People without cars walk and cycle more

Various characteristics of the population and the transport resources available to them affect their choice of walking, cycling or using other means of transport for their journeys. Having a driving licence and owning a car are the variables that are most important for their choice of means of transport. Sections of the populations without a driving licence and a car walk and cycle more than other people.

People that walk are:

- women
- less than 18 years or 67 years and older
- single
- with lower education
- not working
- going to school/studying or being retired
- with a low income
- belonging to a household with low income.

Sections that cycle more than other people overlap to a large extent sections that walk much, but with a preponderance of young people. The use of bicycles decline with age.

People in middle-sized and small towns cycle more

Cycling is most common in middle-sized and small towns, and least common in the largest towns and in the country. This is probably related to the distance between different facilities in these places. Sandnes and Tønsberg/Nøtterøy have been designated as special cycle towns where several measures to increase the use of bicycles have been implemented. In both towns the weekly use of bicycles is higher than the average for Norwegian towns.

Risk and accidents

Poor reporting of bicycle accidents

Pedestrians and cyclists are vulnerable road-users. While 50 per cent of accidents with motor vehicles are reported, less than 3 per cent of accidents with only bicycles involved are reported.

The lowest frequency of reporting is found for single accidents with bicycles. Most of these accidents are not perceived as obligatory to report and only a minority of these accidents is included in official statistics. Accidents where pedestrians and cyclists are injured and where motor vehicles are involved are reported to the same extent as accidents with only motor vehicles involved.

The probability of an accident being reported is related to the severity of injuries. In the majority of unreported bicycle accidents there are only slight injuries that do not require hospitalisation.

Pedestrians and cyclists have the highest accident risk

Pedestrians and cyclists have approximately 4 times as high a risk as car drivers of being injured in accidents reported to the police. If all accidents happening on the road are considered (including pedestrian falls), the accident risks of pedestrians and cyclists are respectively 45 times and 27 times the risk of car drivers. The difference is larger for the risk of fatalities than for the risk of injuries. Pedestrians and cyclists have fatality risks of 7 and 5 times the fatality risk of car drivers.

The elderly and women have the highest risk of injury, both as pedestrians and cyclists. Among pedestrians the oldest have the highest risk of injury. Young people also have a higher risk of injury than average as pedestrians, but not as high as the oldest. Female pedestrians have on the average 5 per cent higher risk than male.

People cycling in the winter have a lower accident risk than people cycling in the summer. This may be due to better skills.

How can the frequency of walking and cycling trips be increased

Replace short car trips by walking or cycling

The choice of means of transport shows a strong association with the length of the trip, but using a car is common even for very short trips. The question is to what extent it is possible to replace short car trips by walking and cycling.

One reason for the frequent use of cars for short trips is that the trips are part of a longer journey consisting of a chain of trips. The EU project WALCYNG has calculated that 25 per cent of car trips shorter than two kilometres form part of a trip chain. In Norway, considerably more than 60 per cent of trips of two kilometres are made by car. Replacing some of these trips by walking or cycling should therefore be possible. Public transport is only relevant as a means of transport for trips longer that three to five kilometres.

Work journeys and leisure trips (less than 5 kilometres) are the car trips that can most easily be replaced by cycling. People would consider replacing 22 per cent of

trips to work and 20 per cent of leisure trips by cycling. 20 per cent would consider replacing short shopping trips by car by walking.

People living in areas with a developed public transport system walk and cycle more than the population in the rest of the country. This indicates that walking and cycling is a as much supplement to public transport as an alternative.

Improving the conditions for pedestrians and cyclists

People experience improved health and the good exercise as the main benefits of walking. The most positive aspects of cycling experienced are that it is fun, it is good exercise and it is convenient. Other benefits from cycling are getting fresh air and that it is simple, inexpensive and environmentally friendly

The most important drawbacks of walking and cycling are that it is inconvenient, ie it takes too long, and that there is a limit to how far one can travel. Other important disadvantages are that one cannot carry large or heavy objects and poor infrastructure, ie that the network of pedestrian and bicycle paths is insufficiently developed, it is difficult to cross the streets, etc.

In order to implement measures to improve the situation for pedestrians and cyclists it is reasonable to use the drawbacks and barriers people come upon when walking or cycling as a starting point. Improvements of the infrastructure, such as:

- developing the network of pedestrian- and cycle paths
- broad pavements
- improved opportunities for crossing, subways and crossings for pedestrian and cyclists
- a more even road surface

are measures requested by many for walking and cycling to be more easy. Studies made when roads have been reconstructed to reduce speeds and make the surroundings more pleasant show that walking and cycling increase by 15 to 20 per cent.

Increasing safety

Several studies show that feelings of discomfort and insecurity may be important reasons for not cycling. A feeling of insecurity in traffic is a problem when it restricts people’s activities or lead people to cancel needed journeys.

Being close to heavy car traffic is a very adverse experience when cycling. Infrastructure measures will contribute to improved safety for pedestrians and cyclists and reduce insecurity. But also measures as laws, regulations, surveillance and enforcement and pricing can contribute to reducing the insecurity people feel when they are moving in traffic.

A feeling of insecurity make people more liable to use their car than they would be in the absence of this feeling. Car drivers are willing to pay 9 NOK a day to avoid experiencing insecurity when cycling to work.

The spots that road users believe are particularly dangerous are not necessarily the spots where accidents are most frequent.

The consequences of more people walking and cycling

Without countermeasures - more bicycle accidents

The total number of accidents may increase if trips are transferred from car to bicycle. In order to achieve the goal of increased walking and cycling and to ascertain that such travel takes place in the safest possible way, safety measures targeted at pedestrians and cyclists need to be implemented.

By investing in pedestrian and cycle paths, pavements and crossings with overpasses, it is feasible to reduce accidents among pedestrians and cyclists. Traffic regulation measures as traffic signalling, elevated pedestrian crossings, traffic islands and fences also contribute to reducing the number of pedestrian accidents.

A better environment and better health

Walking and cycling improve people's physical fitness and reduce morbidity and mortality. Cycling more than ten minutes daily, for example, reduces the risk of angina pectoris and cardiac infarction by five to ten per cent.

Pedestrians and cyclists are more exposed to pollution than people in cars. Currently pedestrians and cyclists contribute to limiting air pollution, but emissions of air pollutants will be reduced if more people walk or cycle.

More information on waking and cycling

Increased effort to promote walking and cycling requires planning tools for evaluating measures aimed at pedestrians and cyclists in the same way as other measures.

The most commonly applied tools for road planning, cost-benefit analyses and transport models, do not handle vulnerable road users as well as other road users. An improvement of such planning tools is essential to be able to plan for increased walking and cycling.

The need for information on how many and who walks and cycles is extensive, but we know even less about:

- How to encourage more people walk or cycle
- What consequences this will have for the individual and for society
- The environmental gains of increased walking and cycling.

The current knowledge base is insufficient for developing tools that makes it possible to consider walking and cycling in transport planning.

For the administration to focus on the field of cycling, resources must dedicated to fill the gaps in knowledge. Among the subject areas where more information is necessary are:

- Data pertaining to the extent and characteristics of walking and cycling

- Factors influencing the feeling of insecurity in traffic
- Calculation of generalised travel costs for pedestrians and cyclists
- Pedestrians and cyclists' exposure to pollution
- The effect on health of an increase in walking and cycling
- Walking and cycling as substitutes and as complements to other means of transport.