

How to obtain a healthy journey to school

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Abstract

Danish children walk and cycle a lot and at the same time have one of the best child road safety records in the western part of world. Based on several studies, the paper describes how Denmark has obtained a good child road safety and why Danish children choose to walk and cycle. Child road safety has predominantly been improved due to higher seat belt use and many implemented local safety measures such as campaigns and physical safe routes to school projects. It is mostly safe routes to school projects that include speed reducing measures and signalisation of junctions that are successful. The distance from home to school is an important factor in children's transport mode choice. Since about half of Danish children have less than 1.5 km to school the decentralised school structure with many fairly small schools is an important reason to the many walking and bicycle journeys. Road design and motorised traffic volumes do influence children's mode choice, but to a rather limited extent.

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1. Introduction

The paper focuses on road safety and travel among school children in Denmark. Being one of the richest countries of the world, one may think that Danish children seldom use non-motorised transportation. This is not true. About 60% of the journeys to school are done by foot and bicycle in Denmark (Jensen and Hummer, 2002).

Risk studies often conclude that walking and cycling is less safe than car and bus travel, so one may think that Danish children relatively often are killed in road traffic. This is neither true. Risk values from 2002 show that 1.3 per 100,000 children of 0–14 years of age are killed in Danish road traffic, which places Denmark as the fourth safest country for children among 28 OECD countries (OECD, 2005).

These facts raise several questions. What makes children choose to walk and cycle to school? How has Denmark attained such a high level of child road safety? The paper presents three different Danish studies (Andersson and Jensen, 2002; Jensen, 2005; Jensen and Hummer, 2002). The three studies answer to some

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degree the two questions raised above using different study objects and methodologies. The first study describes safety effects of more than 100 safe routes to school projects, see Section 2.3. The second study shows the detailed impacts of road and traffic characteristics and travel time on school children's choice of transport mode, see Section 3.2. The third study is described in the other sections and reveals national safety and travel trends and to some degree gives backgrounds to these trends in various ways.

It is important to view the studies in the context of which they exist. Denmark is rather special regarding structure of primary and lower secondary schools and governance of school children transport compared to many other developed countries. A typical Danish school has 300–500 pupils of which most are 6–16 years of age. This highly decentralised school structure means that about half of the school children have less than 1.5 km to school from their home (Jensen and Hummer, 2002).

The municipal reform in 1970 entailed that Danish municipalities became responsible for primary and lower secondary schools, bus transport of school children and the majority of roads, and that they should pay for these services through their tax revenue. Creation of safer routes to schools will benefit the municipality due to reduced costs to school buses and accident victims. Moreover the municipality has many options to improve children's road safety and change their travel behaviour, e.g., through physical measures on roads, campaigns, physical changes of schools and changes of school hours and management.

The Danish Road Traffic Act has since 1976 joined the police and road administrations to implement measures that protect children against moving vehicles on their journey to and from school. The law for primary and lower secondary schools was changed in 1977. Municipalities must provide free travel between school and home for pre-school to class 3 children who have school route journeys longer than 2.5 km. The distance is 6 km for children in class 4–9 and 7 km for children in class 10. Municipalities must also provide free travel for children who have shorter school journeys, if concerns related to child road safety make it particularly necessary. A circular from the Ministry of Justice in 1978 specified the concept of school route and when such a route should be classified as dangerous. In short, the legislation means that school children must be provided with relatively safe routes to school. If the municipality assesses a school route as dangerous, it must, if possible, make the route safer by implementing physical measures, or otherwise provide free travel. In practice, the municipality can choose the number of roads to be classified as dangerous. The legislation does not set a specific minimum level of safety.

Size and placement of schools, safer routes to schools and school transport services are therefore almost entirely a local policy issue in Denmark. School, road and social administrations are managed by the same municipal council.

2. Child road safety

It is widely assumed that child road accidents result from inadequate knowledge and skills. A review of studies of children and traffic shows that, overall, three factors are important to the accident rate (Jensen and Hummer, 2002):

- cognitive and meta-cognitive skills;
- the level of dependent and independent activity in traffic areas and
- motivational and personality factors, e.g., low adherence to responsible social values.

The number of minutes and km that children travel increases with age, e.g., a 10-year-old travel about 35 min and 20 km per day, whereas a 20-year-old travel about 55 min and 38 km per day (Jensen and Hummer, 2002). Danish travel surveys also show that children become less and less dependent on adults with age. Their independence is fully deployed when they reaches 10–12 years of age.

Children below 10 years of age do not have fully developed skills. This affects their safety as pedestrians. The actual risk per walking trip or walked km or hour is higher for young children compared to children aged 10–13 in Denmark (Jensen, 1998a; Jensen and Hummer, 2002). The risk for pedestrians increases again when children are 14 and older. Traffic activity change and become more frequent during nighttime. Fatigue, alcohol and drugs are part of the explanation for increased risk among teenagers on foot.

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