

DRIVING BEHAVIOUR ON A HIGH ACCIDENT RATE MOTORWAY IN THE NETHERLANDS

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Summary

In the north of the Netherlands, on a 25 km section of the A-28 motorway, more single vehicle accidents occur than on comparable motorway sections. On the basis of analysis of police accident data from 1980 to 1988, several accident black spots could be identified on this section. Especially single vehicle and rear-end accidents prevailed on these spots. Systematic in-depth analysis of accidents has shown that most drivers involved in an accident, made judgement errors prior to the accident.

To investigate the causes of the high accident rate in detail, three projects have been started. One of these projects consisted of having 52 subjects drive an instrumented test vehicle over this part of the motorway. During each ride, lateral position (control), steeringwheel movements and speed were measured continuously. Additionally, subject's heart rate and eye movements were registered. Analysis shows, that driving behaviour while driving over most of the accident black spots differed significantly from driving over two control sections. Driving over two black spot sections was found to coincide with increased mental load. At the same sections, the number of eye fixations at traffic irrelevant objects decreased.

Introduction

The A-28 motorway the most important north-south connection for the northern districts in the Netherlands. The motorway is a 2 x 2 lane carriageway, with a speed limit of 120 km/h. In 1988 the local road authority (Rijkswaterstaat) realized that there was, compared to other motorways, a larger number of single vehicle accidents and collisions with fixed objects on a 25 km stretch of this motorway. In order to investigate the human factor in 'why' and 'where' things go wrong, several projects have been started.

One of these projects (Oude Egberink et al., 1990) consisted of in-depth analysis of accidents. Table 1 contains accident information of the 25 km stretch of motorway based upon police accident data of the period 1980 - 1988. Single vehicle accidents, which also contain accidents with a fixed object, prevail.

Table 1: Total number of accidents on the 25 km stretch of motorway in the period 1980 - 1988:

	Number	Percentage
Single vehicle:	275	55 %
Rear-end, flank:	163	33 %
Other:	60	12 %