

**Summary:**

# **Novice drivers' crash risk before and after the age limit for driver training in Norway was lowered from 17 to 16 years**

In October 1994, the age limit in Norway for on-the-road driver training was lowered from 17 to 16 years (while the licensing age was maintained at 18), as one element in a more comprehensive change in the regulations for driver training and licensing. At the same time all geographical restrictions on private driver training were removed. Private driver training means training with e.g. a family member or an acquaintance as instructor, provided the instructor is at least 25 years old and has held a license for at least 5 years. One aim of this reform was to allow the coming drivers better opportunity to achieve driving experience before starting to drive on their own, on the assumption that this might have a favourable effect on their crash risk after licensing. The novice drivers' disproportionately high risk compared to experienced drivers has been amply documented in several studies, and it has also been shown that the risk falls off very rapidly during the first months after licensing. Consequently there is a rationale for assuming that more driving practice before licensing (in a setting where dangerous situations can be avoided due to the intervention by an instructor) might attenuate the initial peak of the risk curve after licensing.

A questionnaire about accidents, exposure, driver training, and background factors was mailed to a sample of 20 700 drivers aged 18-20 years, who had passed the licensing test in the period from April 1998 through March 1999 and had held their license between 1 and 17 months. About 10 000 drivers returned the questionnaire. The data for this group were compared to previously collected data from two additional groups of drivers, who had got their licenses respectively in 1994 (before the regulations were changed) and 1995 (immediately after the change). The age span was the same for all three groups. In addition to self-reported data, analyses were carried out on police-reported personal injury accidents among novice drivers as well.

The three groups are termed *Before group* (1994), *17-year group* (1995) and *16-year group* (1998-99). The only difference between the two latter groups was the opportunity of driver training from the age 16 in the *16-year group*, whereas the drivers in the *17-year group* were 17 years old or more when the limit was lowered, and thus could not benefit from this change. The *Before group* differed from the two other groups in several respects, the main difference being that they had more mandatory

training in a traffic school and a shorter licensing test and were subject to certain geographical restrictions regarding private driver training.

Comparisons of the *16-year group* to the *17-year group* show effects of the reduced age limit alone, whereas comparisons to the *Before group* show effects of the total reform.

In the following presentation results refer to the *16-year group* unless otherwise specified.

## **Amount of driver training**

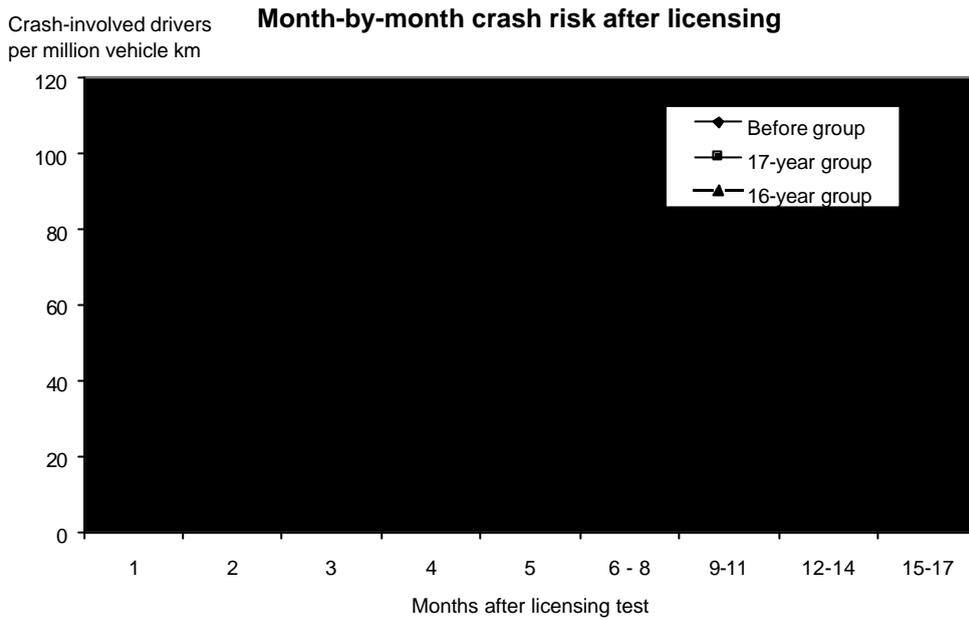
More than half (54.5 %) of the novice drivers in the *16-year group* had begun driver training before their 17<sup>th</sup> birthday. Slightly more than 90 % had some private instruction in addition to the mandatory training in a traffic school – this is a small increase compared to the other groups. The proportion driving more than 50 trips with a private instructor had increased from 23 % in the *17-year group* to 30 % in the *16-year group*. The average number of trips with a private instructor was tentatively estimated to be 54 for the *16-year group*, compared to 46 in the *17-year group*. The total distance of driving with a private instructor was estimated at 1153 km per driver on the average for the *16-year group*, 1027 km for the *17-year group* and 914 km for the *Before group*. Considering both that the available time for driver training before the licensing age was doubled – from one to two years - and that the geographical restrictions were removed, the increased amount of private driving is surprisingly modest. Such a small increase gives little reason to expect any substantial effect on the post-licensing crash risk.

## **Crash risk before licensing (during driving with an instructor)**

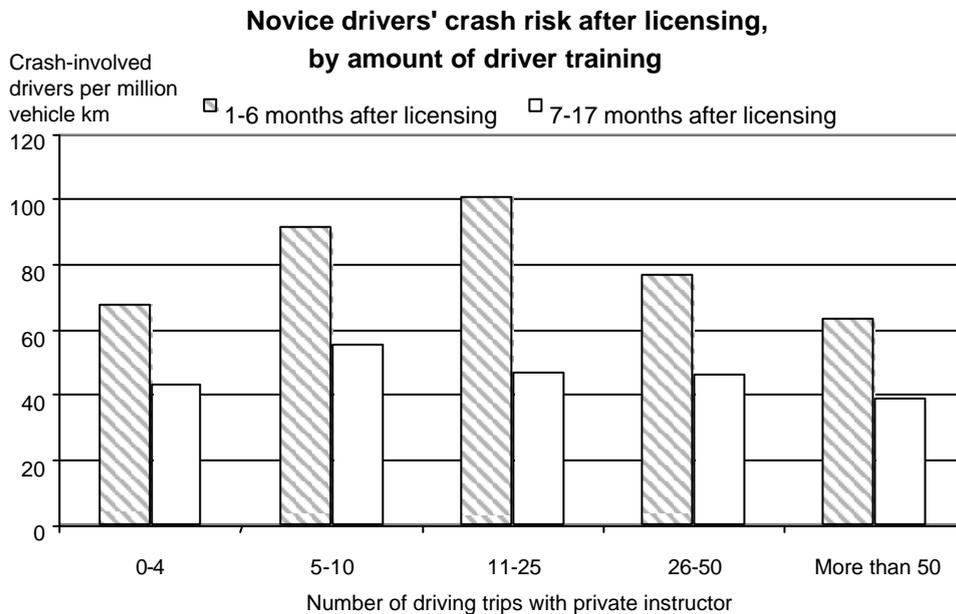
Significantly more drivers in the *16-year group* than in the *17-year group* had been involved in a crash during driving with a private instructor. This is however explainable by the increased driving distance, so that there is no significant difference in the risk (crashes pr. distance driven). Nor for driver training in traffic schools were there any significant differences in risk between the groups.

## **Self-reported crash involvement among novice drivers**

Significantly more drivers in the *16-year group* than in the *17-year group* were involved in a crash during the first few months after licensing. At the same time there had been a considerably increase in the average distance driven, so that the risk was not significantly different. The month-by-month risk development after licensing was very similar for all three groups.



A comparison of the post-licensing risk was made between drivers with different amounts of private driver training. In this comparison data from all three groups were pooled. An inverted U-relationship was found between post-license crash risk and driver training, implying that drivers with an intermediate amount of driver training had a higher crash risk than both drivers with little or no private training and those who had most training. The same relationship with risk appears for the total amount of driver training, i.e., the sum of private and traffic school lessons.



It is hypothesised that the low risk among those with little training is due to insecurity resulting in careful driving, whereas those with the highest amount of training have a similarly low risk due to better traffic skills. The intermediate group is supposed to have got sufficient experience to reduce their insecurity, resulting in less careful driving, but not sufficient experience to master difficult situations. This interpretation is supported by

the finding that the inverted U-relationship is prominent only for the first few months (months 1-6) after licensing and disappears more or less during the following months (months 7-17).

## **Analyses of the official statistics for injury accidents**

In these analyses the involvement in police-reported accidents during the first year after licensing is compared between three cohorts of novice drivers who got their licenses in the calendar year of their 18<sup>th</sup> birthday. To secure optimal temporal correspondence between these cohorts and the groups of the questionnaire study, the cohorts included drivers who got their licenses in 1994, 1995 and 1998, respectively. Data on driving distances are taken from the questionnaire study.

<b>Year of licensin g test</b>	<b>Crash- involved drivers</b>	<b>Driver licenses issued</b>	<b>Crash- involved drivers per 1000 licenses</b>	<b>Average driver km per month</b>	<b>Crash- involved drivers per million km</b>
1994	518	32632	15.9	739	1.72
1995	466	29046	16.0	747	1.72
1998	554	26875	20.6	856	1.93

The differences between the cohorts in crash involvement per distance driven are not significant. There is, however, a nearly significant tendency in the direction of higher risk in the 1998 cohort. If this reflects a real effect, it is in the opposite direction of what was expected to result from the 16-year age limit. There is however, no reason to suspect that this effect is related to changes in driver training in any way, since the whole increase has taken place after 1995, i.e., during a period without any change in the formal driver training, and only a modest increase in private training. Other explanations must therefore be sought regarding the apparent increase in novice drivers' accident risk during the recent years.

## **Fewer young people get a license**

During the last half of the 1990s the proportion of 18-year-old persons with a license decreased considerably, from 58 % in 1994 to 49 % in 1999. The decrease has been approximately the same for both males and females.

The decrease in licensing may be selective, with socially or geographically different population segments being differentially affected by the decrease. If the decrease in licensing were larger in population segments with a low crash risk than for those with a

higher risk, the average risk would increase even if the risk within each segment remained constant.

The questionnaire results indicate that the *16-year group*, who got their licenses in 1998-99, comprised a relatively lower percentage of drivers from the densely populated counties around the Oslo fjord, compared to the previous groups. This may imply that drivers from scarcely populated areas make up an increasing proportion of the young driver population. In addition, the proportion of drivers who own a car and/or who drive as part of their job has increased.

Both the changes in composition of the driver population and in car ownership and use may influence the number of accidents as well as the risk per distance driven. It is known that the exposure is higher among young drivers in rural as compared to urban areas. A relatively higher proportion of drivers in rural areas, as suggested above, then results in a higher average exposure, and consequently a higher probability of crash involvement per driver. Relatively more driving in rural areas may also imply more severe accidents on the average, due to higher speeds. Consequently, the total result could be a higher risk of injury accidents.

## **Conclusions**

- Lowering the age limit for driver training from 17 to 16 years has resulted in a rather small increase in the amount of private driver training.
- Both the questionnaire data and the official accident statistics show that an increasing proportion of novice drivers are involved in crashes during the first months of driving. At the same time the exposure has increased, so that there has been no significant change in risk, with a possible exception of an increase in injury accidents. This possible effect is probably not related to changes in driver training.
- Neither the reduced age limit nor other changes in driver training have yielded demonstrable effects on novice drivers' crash risk after licensing.
- The decrease in licensing as well as changes in car ownership and use among young people during the recent years may have resulted in temporal and spatial exposure changes, making it difficult to disentangle possible effects of driver training from the effects of other factors.
- The relationship between post-licensing crash risk and amount of training may suggest that the training must exceed a certain minimum before a favourable effect on the risk can be observed.
- The marked fall in risk during the first months after licensing suggests that more driving before licensing may reduce the initial post-license risk. The observed increase in training due to the reduced age limit is however too small to be effective. The authorities should therefore take efforts to secure that young drivers receive considerably more training before getting a license.