

## Young novice drivers

### Summary

Young novice drivers (18-24 years old) have a crash rate that is more than four times higher than that of experienced drivers (30-59 years old). The rate of young males is even more than six times higher. The main causes are lack of experience and the age itself. The existing measures for young novice drivers (the current driver training, the driving examination, and the novice's driving licence) have not been found to have a road safety effect, or the effects are as yet unknown. However, a substantial road safety benefit for this group is expected from the introduction of a graduated driving licence.

### Background and content

Young novice drivers (18-24 years old) have a relatively high risk of being involved in a serious road crash (with at least one fatality or in-patient). Their risk is more than four times higher than that of the 30-59 year old drivers. This relatively high risk is not unique to the Netherlands, but exists worldwide among youths who have just obtained their driving licence and may thus drive independently (OECD, 2006).

In the Netherlands, every 18-24 year old driver is more or less a novice. The minimum age for starting car driver training in the Netherlands is 18. This means that the 18-24 year olds have a maximum driving experience of six years, but usually this is a lot less. In general, a driver is not considered experienced until he has driven for at least six years or 100,000 kilometres.

This fact sheet will discuss the above-average high crash rate of young novice drivers and its causes. It will also look at the present measures for young drivers in the Netherlands and at other measures that could also improve their road safety.

### What is the size of the road safety problem for young novice drivers in the Netherlands?

In 2008, 20% of all cars involved in crashes with fatalities or in-patients were driven by a young driver of 18-24 years old. This is a high percentage because young drivers are only 7.8% of all driving licence holders. Nearly 2.5 times more young men than young women are involved in serious crashes. Young drivers are not only more of a danger to themselves than older drivers, but they are also more of a danger to their passengers and crash opponents. This is illustrated by the following figures. In 2008, there were 110 fatalities in crashes involving young novice drivers, 58 of whom were 18-24 year old drivers (51 men and 7 women), and a further 559 young drivers were hospitalized (394 men, 199 women, and 2 unknown). In the same year there were 17 fatalities among the passengers and 35 among the crash opponents (both groups of all ages). This means that approximately half the fatalities in crashes involving young novice drivers are 'others'.

### *Alcohol and drugs*

Drink driving is less frequent among young drivers than other age groups. In spite of this, alcohol plays a role in many of the young drivers' serious crashes. This is because even with a BAC of just 0.5 ‰ their crash risk is six times higher than if they had not drunk at all (Mathijssen, 1999). The reason for this is their lack of experience in combination with the effect of alcohol. An increasing problem among young (male) drivers is that of drug use, either combined with alcohol or on its own. See also the SWOV Fact sheets [Driving under the influence of alcohol](#) and [Driving under the influence of drugs and medicines](#).

### *Types of crashes*

Relatively often young drivers are involved in single vehicle crashes; crashes in which no other party is involved. These crashes can for instance be caused by a steering error leading to the vehicle going off the road and rolling over, or by noticing an object (e.g. a road cordon) too late and crashing into it. Approximately half of all fatal crashes involving a male novice driver are single vehicle crashes as opposed to a quarter for experienced male drivers (30-59 years old). For young female drivers a third of all fatal crashes are single vehicle crashes. Although this is less than for male drivers, it is more than for experienced female drivers. The large proportion of single vehicle crashes indicates that novice drivers have problems with keeping on track and choosing safe speeds.

### Crash rate

Also when corrected for the number of kilometres driven, the crash rate of young drivers is the highest of all age groups (see *Figure 1*). In all age groups the crash rates of male and female drivers are more or less the same or somewhat higher for women. Only in the age group 18-24 year olds the crash rate of young males is much higher than that of young females. This high crash rate for young novice drivers and for young male novice drivers in particular, is not unique for the Netherlands. It is typical of Western motorized societies (OECD, 2006).

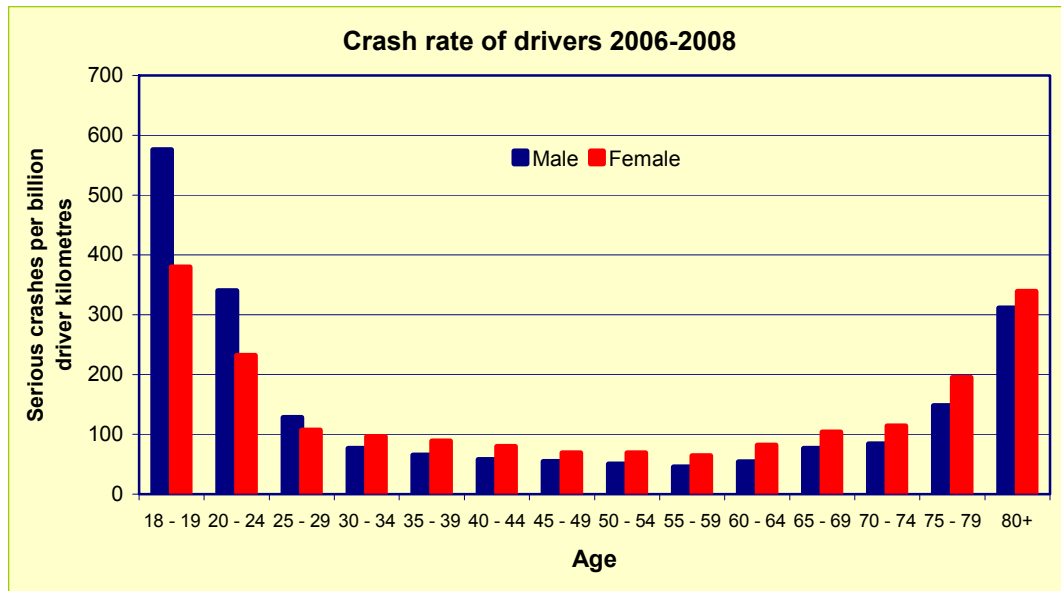


Figure 1. The number of crashes with fatalities or in-patients per billion driver kilometres for various age groups of drivers in 2006-2008.

In the last 20 years, traffic has become a lot safer in the Netherlands. For the 30-59 year olds the average risk (per kilometre) of a fatal crash has decreased by 60%. This percentage is the same for 18-24 year old females. Hence, the difference in rates between young and experienced women has remained a factor of 2. Unfortunately the fatality rate of young male drivers showed a much smaller decrease than that of experienced male drivers. This has resulted in an increased difference in fatality rate between these two groups from a factor of 5 to a factor of almost 7. In Great Britain and Sweden we see a similar development (Wegman et al., 2005). This means that the road safety measures that were taken during the last 20 years have barely had an effect on the safety of young males.

### What are the possible causes?

A number of factors contribute to the relative high crash rate of young novice drivers and their unsafe driving behaviour. These are mainly related to their inexperience and the age itself:

- mental and physical immaturity, in particular the limited development of those brain parts involved in impulse control, regulating emotions etc;
- high risk acceptance;
- high exposure to dangerous situations (the young, especially males, more often drive at night and during the weekend);
- lifestyle: trying out something new, enjoying friends' company, wanting to impress and outdo them, conforming to the group norm;
- alcohol, drugs, and fatigue;
- lack of routines and automatisms (driving experience);
- overburdening caused by a limited capacity to select the most important information from the traffic situation and to act on it adequately;
- new, unknown traffic environment;
- limited capacity to recognize hazards;
- overestimation of one's own skills in combination with underestimation of the traffic situation's complexity;

- distraction by, for example, passengers or mobile phone use (see also SWOV Fact sheet [Concentration problems behind the wheel](#)).

### **What are the effects of existing measures in the Netherlands?**

The current measures for young novice drivers are aimed at the driver training and driving examination, as well as at the period after having obtained the driving licence. In general, the road safety effects of the existing measures are either not known, or it has not been possible to establish their effects. An exception to this is the lowering of the legal alcohol limit for novice drivers.

#### *Driver training and examination*

No studies are known of the road safety effects of the *driving examination* itself. Nowadays, such a study is practically impossible because all the European Union countries have set examination requirements. However, studies have been made of the effect of having or not having a professional *driver training* and of its various types. These studies, however, have not been able to establish that official driver trainings in their present form have a safety effect. One of the causes mentioned is that, both in the Netherlands and abroad, the driver training pays too little attention to attitudes, reasons for safe traffic participation, or higher order skills such as hazard perception. In addition, the standard basic training is too limited in the number of lessons and traffic situations to gain sufficient driving experience. The contents and composition of the driver training in the Netherlands have recently been improved. The training known as "Driver training in Steps" uses performance schedules for routine driving skills. This system was extensively tested in the province of Gelderland, and has now been introduced nationwide. The results of the assessment studies are moderately positive. For a detailed description of the results see the SWOV Fact sheet about [Driver training in steps](#).

#### *After having obtained the driving licence*

Since 30<sup>th</sup> March 2002, novice drivers in the Netherlands first obtain a *licence on probation* which is linked to a rather simple demerit points system. If three serious offences are committed in the first five years, the driving licence can be withdrawn; if no offences are committed, a 'regular' driving licence is issued. This measure applies to all novice drivers: passenger vehicle drivers, lorry drivers, and motorcyclists. The road safety effect of the novice driving licence has recently been assessed in the Netherlands (Vlakveld & Stipdonk, 2009). This study found that neither the developments of the number of crashes, nor the numbers of novice drivers who have received 1, 2 or 3 demerit points, indicate that the licence on probation in the form that it was introduced has been an effective measure. This finding agrees with the effects of 'heavier' demerit points systems for novice drivers in Germany and Great Britain. A moderately positive effect during its first year was only found in Germany (Vlakveld, 2004a). This confirms the experience that demerit points systems are effective for a brief period after the introduction, but that they have no long term effect. Because of the reunification it was impossible to measure any long-term effects of the heavier demerit points system in Germany. For more information see SWOV Fact sheet [Demerit points systems](#).

#### *Lowering the legal alcohol limit*

Because young novice drivers already have a higher crash rate in traffic at a lower blood alcohol content than the Dutch legal limit of 0.5‰ (OECD, 2006; see SWOV Fact sheet [Driving under the influence of alcohol](#)), the legal limit for novice drivers was lowered to 0.2‰ as of 1 January 2006. This new limit is valid during the first five years after having obtained a driving licence. Some time ago, SWOV estimated that such a lowering of the limit for novice drivers, with the same enforcement level, could result in a 5% reduction of the total number of alcohol-related crashes in the Netherlands (Mathijssen, 1999). An added advantage is that the lower limit may contribute to the reduction of combined alcohol and drugs use by especially young male drivers which results in a very high crash rate (see also SWOV Fact sheet [Driving under the influence of drugs and medicines](#)).

### **Which new measures for driver training and driving examination can be effective?**

*Driving simulators* offer the possibility of showing traffic situations that rarely occur or are much too dangerous to confront novice drivers with. They also offer the opportunity to practice manoeuvres and skills systematically and intensively. There are few studies into the simulator's effects on the drivers' learning process, and no studies at all of the effects on the crash rate of novice drivers (see also SWOV Fact sheet [Simulators in driver training](#)).

In the driver training, it is important to pay attention to *hazard perception*: i.e. the skill of rapidly estimating when a traffic situation requires a driver to act in order to avoid it. The more experienced a

driver, the better his hazard perception. The question is whether or not this skill can be taught and learned. Hazard perception tests are included in the theory exam in Great Britain and parts of Australia. A training in hazard perception is given to be able to pass this test. In the Netherlands, hazard perception has been a separate part of the driving examination for passenger cars since March 2009 (see SWOV Fact sheet [Hazard perception](#)).

Some countries have introduced a *second phase in driver training* because the basic driver training has a limited duration, does not include sufficient different traffic conditions, and (most important of all) because the learner driver always under supervision of the driving instructor and does not learn to take decisions independently. The purpose of the second phase is to allow novices with several months driving experience to recognize situations for which their power of judgement is insufficient. They are confronted with situations such as haste, passengers, speed choice, distraction, etc. Mostly, the training sessions are no longer than a day. Studies have shown that a second phase can be effective, provided the trainings are not aimed at vehicle skills (such as skid control) but on insight (see also SWOV Fact sheet [Post-licensing training for novice drivers](#)).

In some countries learner drivers can also gain driving experience by *accompanied driving*, for example, accompanied by parents. This is done because the official driving lessons do not provide sufficient driving experience to guarantee safe traffic participation. In the Netherlands, in the regular driver training, the learner drives for an average of 40 hours (about 1600 kilometres/1000 miles) in a limited and reasonably well known area before the driving test is taken. In Sweden, the period of accompanied driving during the learning phase was made four times longer, an increase from six months to two years. Research has shown that this was effective: this resulted in 35% less crash involvement during the first two years after obtaining the driving licence. In the Netherlands, the possibility for accompanied driving is being prepared. The intention is that the driver training can be started at the age of 17 and that, after having passed the driving examination, driving will be allowed under the supervision of an experienced driver until the age of 18 (see also SWOV Fact sheet [Accompanied driving](#)).

### **Which new measures can be effective after having obtained the driving licence?**

There are various measures for novice drivers that are already being used elsewhere.

#### *Measures aimed at protection*

A number of countries have chosen for a *night time driving prohibition* during the first months after having obtained a driving licence. The night time hours have proved to be particularly dangerous for young drivers. SWOV has calculated that such a prohibition in the Netherlands would save approximately 40 fatalities (Wegman, 2001). In a number of countries, young novice drivers are not allowed to carry *passengers*. The statistics show that the crash rate is higher when there are passengers in the car, especially if they are of the same age. A number of countries are gaining experience with a restriction on mobile phoning for novice drivers. See SWOV Fact sheet [Use of mobile phone while driving](#) for more information on this topic.

#### *Measures aimed at discouragement*

*Trip recorders* and *alcolocks* in the car can prevent wilful driving offences. Until now, no experiments have been conducted among young novice drivers in the Netherlands (Vlakveld, 2005). Building in trip recorders has led to a crash reduction among professional drivers (Wouters & Bos, 2000). For the time being *alcolocks* are mainly being used to combat recidivism (see SWOV Fact sheet [Alcolock](#) for more details).

Special *driver improvement trainings* for young novice drivers who have been observed driving riskily have been developed in Germany and Austria. The training sessions are usually linked to a demerit points system and are intended to change motivation and attitudes. We know of no studies of the crash involvement effects of such training sessions on the young novice drivers' crash rate (Vlakveld, 2005). However, recidivism can decrease as a result of driver improvement training. See SWOV Fact sheet [Demerit points systems](#) for more details.

#### *Rewarding*

Recently, several initiatives have been started to reward safe behaviour in addition to punishing hazardous behaviour. Earlier research has shown that a reward can be just as effective as a punishment, provided it is correctly used (Hagenzieker, 2005). Trials are carried out among young novice drivers whose cars have been fitted with recorders that register their driving behaviour

continuously. If the registration shows that the young driver has abided by the agreed rules, he receives a reward. These agreed rules can involve the actual driving (e.g. driving speed), but can also involve the driving conditions (e.g. not in the night time or not with passengers). Until now, the effectiveness of these rewarding systems has not been assessed.

### **What is an ideal mix of measures?**

The factors that contribute to the high crash rate of young novice drivers are so diverse that a combination of measures is required to influence this crash rate sufficiently. This diversity of factors also means that the entire development from novice to expert has to be accompanied; not only the driver training itself, but also the period after having obtained the driving licence. During the driver training, the novice must have gained so much experience that, after having passed the driving exam, he has sufficient skills to participate in traffic. After having obtained the driving licence, the novice should be allowed to drive in increasingly more dangerous conditions and situations as he gains experience. Therefore, it is preferable that the process from novice to driving entirely independently should be graduated. Much experience with the graduated driving licence systems has been gained in the United States, Canada, Australia, and New Zealand. Usually driving experience is gained only while driving accompanied in the beginning, followed by a period of gaining experience while driving independently but protected by measures excluding dangerous driving conditions. The more driving experience the novice gains during the driver training, the fewer restrictions are imposed. In all places where the graduated driving licence is used, the crash rate is nearly 10-30% lower than before it was introduced (Vlakveld, 2004b). For more details see SWOV Fact sheet [The graduated driving licence](#).

### **What is the support from the young for such measures?**

The young know that, as a group, their crash risk is higher, but they consider it an unavoidable consequence of the learning process. Just like learning to walk, it is a matter of 'if at first you don't succeed, try and try again'. They have little insight in the underlying causes and also have a too favourable idea of the consequences of crashes (Heidstra, 1999). Therefore, it is necessary to inform youths (and their parents) about the actual risks for novice drivers and their underlying causes. This, however, is insufficient for generating the required support or for stimulating safer traffic behaviour. To achieve this, it must be made explicitly clear which effective strategies the young drivers (and their parents) can apply to reduce the risks. In addition, the tone of the information determines its effectiveness. Although youths themselves often ask for very hard information in the form of so-called 'fear appeals', research has shown that the 'hard' campaigns are less effective, also for this target group. (See also SWOV Fact sheets [Public information about road safety](#) and [Fear-based information campaigns](#))

### **Conclusions**

In 2008, 20% of all cars that were involved in serious crashes (crashes with fatalities or inpatients) were driven by a young novice driver in the age group 18-24 years old. This is a high proportion, as only 7.8% of the driving licence holders are young novice drivers. Young novice drivers have a crash rate that is four times higher than that of experienced drivers (30-59 years old). For male young novice drivers the crash rate is even six times higher. The main causes are the lack of driving experience and 'the age itself'. In recent years, The Netherlands have introduced three additional measures for novice drivers: the licence on probation for novice drivers (from 2002), the lower alcohol limit (from 2006) and the hazard perception test (from 2009). During the last 20 years, the crash rate of young males has decreased less than that of experienced male drivers, whereas the crash rate of young female drivers decreased at an equal pace as that of experienced female drivers.

### **Recommendations**

SWOV is of the opinion that both research and policy need to pay more attention to young male novice drivers. Furthermore, using the principle "more skills, more freedom" considerable gains can be made by introducing a graduated driver licence (see SWOV Fact sheet [The graduated driving licence](#)). The present lower alcohol limit as well as the intended introduction of accompanied driving can be considered part of such a graduated driver licence.

### **Publications and sources**

**((SWOV reports in Dutch have an English summary))**

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