

LEGISLATION AND RESEARCH IN THE NETHERLANDS IN THE FIELD OF  
TRAFFIC SAFETY REGARDING SEAT BELTS AND CRASH HELMETS

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## 1. LEGISLATION REGARDING SEAT BELTS, CHILDREN IN CARS AND CRASH HELMETS

### 1.1. Legislation on seat belts

Since January 1st 1971 new passenger cars in The Netherlands had to be fitted with seat belts on both front outboard seats. Since June 1st 1975 drivers and front seat occupants in passenger cars have to use their seat belts. Exceptions are provided for drivers and front seat passengers in cars older than from January 1st 1971. Other exceptions concern driving backwards (driver); occupants smaller than 150 cm; passengers younger than 12 years; and some minor points.

Three types of belt are currently available in cars: three-point belts, lap belts, diagonal belts. Both lap belts and diagonal belts tend to disappear in favour of (automatic) three-point belts.

### 1.2. Legislation on children in cars

Since April 1977 children under the age of 12 are not allowed on front seats, unless they use a child restraint system approved for front seats. Children older than 4 years may also use a lap belt if available. In all other cases children should use the back seats.

### 1.3. Legislation on crash helmets

Both for motorcycle and moped drivers and occupants the use of crash helmets is compulsory. For moped riders since February 1st 1975; for motorcyclists since June 1st 1972.

## 2. LABORATORY EXPERIMENTS ON CRASH SAFETY

Crash tests are carried out by several Dutch organisations. The Research Institute for Road Vehicles TNO (IW-TNO), part of the Organisation for Industrial Research TNO, has several facilities for full-scale crash-tests, both outdoors and indoors. Routine compliances tests are carried out on seat belts, crash helmets, child restraint systems etc.

The Institute for Road Safety Research SWOV has its own programme for crash tests regarding roadside obstacles and crash barriers a.o. The Institute may also supervise, sponsor or take part in crash experiments carried out by IW-TNO.

Both SWOV and IW-TNO take part in internationally organised research, for example for the EEC.

### 3. OTHER RESEARCH ON CRASH SAFETY

Both organisations mentioned before have projects in the field of crash-injury research.

SWOV carries out accident investigation studies concerning cars, aimed at finding factors contributing to injury causation and establishing effectiveness rates for crash safety devices, like seat belts.

SWOV will soon start accident studies concerning pedestrians and two wheelers, also aimed at finding factors related to injury causation.

An interesting topic of all mentioned accident investigations is that longer-term effects of crash injuries will be included. All studies are carried out on a statistical base.

Specially developed sophisticated mathematical models for 2- and 3-dimensional simulations of the human and vehicular conduct during collisions are used in research directed to safe roadsides (obstacles, guide rail structures, obstacle-free zones, lighting poles, etc.).

These models (after further development) will also be used in combination with accident studies for accident reconstruction purposes. To complete the line of research a statistical mathematical model is being developed for injury-prediction purposes using human tolerance (biomechanical) data as reference material.

Very recently SWOV has started research concerning the post-crash phase of accidents. Aim is to isolate important contributing factors to accident severity in this phase.

#### 4. USE OF SEAT BELTS AND CRASH HELMETS

Detailed data on use and availability of different types of seat belt is available in The Netherlands.

SWOV carries out enquiries among road users on a yearly base.

In short the use rate increased from about 25% before the seat-belt law to about 70% after 1975 (outside city limits). The use rate inside city limits increased to about 50%. Both figures seem to be fairly stable now.

Use of crash helmets both for moped riders and motorcyclists is close to 100%. It was already high before the use became compulsory.

## 5. INFLUENCE OF LEGISLATION ON TRAFFIC FATALITIES AND INJURED

Dutch national accident statistics show up to 1973 a steady increase in the absolute number of traffic-accident fatalities and injured. The number of 1974 fatalities was about 20% lower than expected from normal trend expectations. The number of 1975 fatalities was 26% lower than expected and 9% lower than the 1974 figures.

The 1974 drop seemed to be due to effects from the international oil crisis and was noted in other countries as well. At the same time measures in the field of reduction of traffic on certain days, distribution of petrol and speed limits had been taken in The Netherlands.

Other measures during 1974 and 1975 were the alcohol law (reduction of drunken driving), the crash-helmet law and the seat-belt law.

Since all these measures were taken within short time of each other, it was virtually impossible to separate the individual effectiveness data by studying the national accident statistics.

Using these statistics and national data on injuries for road users published annually, SWOV proved, however, that savings of 60% on fatalities due to the use of seat belts and 40% on fatalities due to the use of crash helmets by moped riders (as established in real world accident studies) were quite feasible. Also changes in the number of injured and changes in injury pattern could be found and explained due to both seat belt and crash helmets.

However, since traffic itself is still increasing, especially for cars and motorcycles, and changes in traffic behaviour, especially with regard to speed limits, take place, exact calculations on the effectiveness of safety measures are very hard to make if only national statistics are used.

The number of fatalities and injured has dropped again considerably in 1978 as compared to 1977 and 1976. No apparent reason for this

10% decrease has been found yet, since no special measures were taken during that period and the decrease seems too high to be explained by random fluctuations only.

On all the above mentioned topics published reports are available as found in the list of literature below.

LITERATURE

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