



Photo: TUC

Leaving the car unscathed after a collision

Why are female drivers more seriously injured than their male counterparts in certain types of accident? Can safety tests be made more accurate and how can we survive a side-on collision? The APROSYS project has addressed these and many more issues.

The European research project APROSYS (Advanced Protection Systems) is geared to the development and improvement of systems that enhance safety during a traffic accident, with a lot of focus on methods to test the safety of cars. The methods are outdated, partly in view of the fact that in some types of accident women are more seriously injured than men.

'These tests use dummies that represent the average male,' explains Margriet van Schijndel-de Nooij, project manager for Automotive Integrated Safety at TNO and coordinator of APROSYS. 'However, this dummy does not look like the average female or older car driver, which excludes a significant proportion of the population. In the project a dummy had to be developed that could bridge the gap between the existing dummies and actual drivers. The existing test methods, too, needed to be adjusted and new methods developed.'

VIRTUAL CRASH TESTING

The accuracy of safety tests has been examined in part through focusing on the effects of an impact on different parts of the body, like the head, the torso and the pelvis. The results of experiments in this area have been incorporated into simulation software to allow car safety to be tested virtually. 'This can save manufacturers money while they are able to test at more moments and in more scenarios,' says Van Schijndel. 'We hope that these virtual tests will

supplement the standard test protocol because this will give you much more information.'

Side-on and frontal collisions are responsible for ninety per cent of fatalities. While systems do exist that are able to anticipate a frontal collision, this is not the case for side-on collisions. 'The crumple zone is much smaller – there is just the door, so there is much less time to anticipate,' Van Schijndel explains. A system has been developed within APROSYS that is able to react within two hundred milliseconds to an unavoidable side-on collision and initiate various safety actions. For instance, a metal rod can generate a counter pressure on the door, which produces a few extra centimetres of space.

The car driver will not notice too much from the project results in the short term. 'This is sector in which extensive testing is the order of the day, and that takes time,' says the APROSYS coordinator. 'However, we do hope to have modified the test procedures within a year so that you can see that a car is safe for everyone when an accident occurs at a particular moment. In addition, protective gear has been developed for motorcyclists – this should be available by the end of the year. There was plenty of interest in this at our closing conference.'

Info: margriet.vanschijndel@tno.nl

AIMING FOR REDUCTION TO 28,000 TRAFFIC FATALITIES

In the fifteen 'old' EU member states the number of traffic fatalities fell from 56,055 in 1990 to 29,516 in 2006. The aim for 2010 is to reduce this figure for the entire EU to 28,000 (source: SWOV / EU-CARE). Fifty partners from thirteen countries and almost half from the car industry have participated in APROSYS, for which TNO was coordinator, since 2004. The project's budget was thirty million euros.