

## **Whiplash – Volvo’s new safety challenge**

Volvo is taking up yet another major challenge in the field of safety: whiplash injuries.

A new type of car seat is being developed in a research project entitled WHIPS (Whiplash Protection Study). The objective is to achieve a substantial reduction in injuries in low-speed rear-end collisions.

Half of all the traffic injuries that result in invalidity are caused by whiplash, which mainly occurs in rear-end collisions. Whiplash injuries arise when the head is thrown backwards in conjunction with a rear-end impact. Common symptoms include neck pain, numbness and difficulty in concentrating.

### **High priority**

For ten years, Volvo has been involved in in-depth studies of neck injuries together with medical expertise. These studies have provided the platform for the design of Volvo’s car seats.

In several international surveys, Volvo cars – the Volvo 850, for example – have proved to be in a class of their own in terms of safety in rear-end collisions. Volvo will not be satisfied with this, however. There is still much to do to reduce the human suffering caused by whiplash injuries.

The WHIPS research project has therefore been given top priority in Volvo’s safety research. The company’s safety engineers are working on a completely new seat concept with the objective of achieving a significant reduction in whiplash injuries in rear-end collisions at low speeds – which is how most of these accidents happen.

### **New seat for greater protection**

This is how the new seat concept works:

If the car is hit from behind, the occupant is thrown back against the backrest and head restraint. At the same instant, the advanced whiplash protection system comes into play.

The entire upper body and head are caught in a balanced, gentle manner by moving the backrest and head restraint backwards in a parallel movement. This also keeps the distance between head and head restraint as small as possible.

This is very important. The smaller the distance between head and head restraint, the smaller the risk of whiplash injury.

Then the backrest tips backwards so that the body continues to be restrained in a balanced sequence. This also reduces the forward rebound that the body is subjected to after being thrown back in the seat.

The entire process takes place in a single smooth sequence, but with two integrated phases.

The seat backrest has also been improved in order to distribute the forces more evenly along the back and neck, which maximises the protection for the spine.

Volvo's safety research has resulted in a long procession of pioneering safety solutions over the past fifty years. WHIPS is an important contribution to the work of creating cars that are as safe as they possibly can be.

In the WHIPS project, Volvo is working together with the car safety company Autoliv.