

## Press Release

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# Volvo seats reduce whiplash by 50 per cent

A whiplash injury is the result in seven out of ten accidents that result in personal injury. But the risk can be heavily reduced. The seats in Volvo cars help reduce the risk of a whiplash injury by half, thanks to improved protection through the built-in whiplash protection system – WHIPS.

The greatest risk for a so-called whiplash injury occurs in a rear-end collision, and often at low speeds, i.e. in city traffic: The car is hit from behind by another vehicle and the violent motion of the upper body put an enormous strain on the relatively weak neck (cervical spine). This can result in whiplash associated disorders, i.e. severe neck pain and head ache, often on a long-term basis.

Whiplash injuries are difficult to detect and determine, and result in much suffering both physical and psychological.

### **Different studies give the same results**

After having studied the problem for quite some time, Volvo Car Corporation introduced the WHIPS system for the first time in 1998, as a standard safety feature in the then new Volvo S80. Since year 2000, all Volvo models are standard equipped with WHIPS front seats.

For the last four years, the traffic accident research team at Volvo Cars has closely followed the results of rear-end collisions with Volvo cars in Sweden, comparing occupants traveling in Volvos with and without WHIPS. The results point clearly in one direction:

WHIPS reduce short-term injuries by 33 per cent and long-term injuries (more than a year) by 54 per cent. The largest reduction is to be found among women – 50 per cent on short term and 75 per cent on long-term injuries.

The Volvo Cars results follow those from other studies; US Insurance Institute for Highway Safety (IIHS) and Swedish insurance company Folksam together with the Swedish Road Administration.

In the IIHS study, from October 2002, car seats with newly developed whiplash protection were compared with seats from the previous year. Clear improvements were established in most cases and the average injury reduction factor was that of Volvo, with 49 per cent.

The Folksam study is in fact two. One study has compared real-life accidents, just like Volvo Cars has. That study shows that the WHIPS system reduces the risk for severe whiplash injury with 40 per cent.

The other study was performed with crash tests using driver seats from different 2003 car models on the market. The conclusive results confirmed those of Volvo Cars and IIHS:

Volvo was considered the safest and the overall injury reduction would be in the region of 50 per cent if all cars had seats like those of Volvo.

### **The Volvo WHIPS system**

The key principle when developing WHIPS was that both the entire spine and the head must be safely supported in a crash. Therefore Volvo cars did not only further develop the head restraint but also developed a supporting mechanism in the seat back.

WHIPS consist of both the high head restraint close to the head, a well-developed seat back structure in order to meet the moving body of the occupant effective and evenly, in combination with a built-in energy absorption in the joint between the seat back and the seat cushion.

In a rear-end collision, the seat back will move backwards with the occupant, first in parallel and then in a short reclining movement. The forces on the occupant will be reduced thanks to a deformation element where the seat back meets the cushion.

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