

ACCIDENT RESEARCH

TO UNDERSTAND THE CAUSES OF ACCIDENTS

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What combination of factors was the cause of an accident?

What was the script? Until what point was it avoidable?

All questions to which accident research seeks answers.



▸ Safety

▸ Environment

▸ Life on board

▸ Mobility

▸ **Competitiveness**

BASIC FACTS

Accident research draws principally on detailed study of accidents. It is a recent discipline whose aim is to study the causes and consequences of an accident for a vehicle, its occupants, and road users as a whole. It adopts a pluridisciplinary approach that brings together doctors, engineers, biomechanics researchers, statisticians, and psychologists. Accident research thus incorporates

the human factor in addition to the physical parameters of vehicle dynamics. And it emerges from analyses that accidents are usually the result of a convergence of human failings. Twenty-six percent of drivers involved in accidents commit an error of perception, 18% an error of diagnosis, 18% an error of prognosis, 17% make the wrong decision about emergency action or take the right action but do so

wrongly. 6% of drivers make a series of errors and 15% none. When an accident can no longer be avoided the important thing is to protect the occupants of a vehicle. This is the field of secondary accident research which seeks to understand the behaviour of a vehicle's structure in the event of impact, how injuries occur, and to devise new systems for absorbing the energy from an impact.

IN SHORT

THE OBJECTIVE OF ACCIDENT RESEARCH IS TO UNDERSTAND THE CHAINS OF EVENTS THAT LEAD TO ACCIDENTS AND TO STUDY WHAT STEPS COULD HAVE BEEN TAKEN TO BREAK THE CHAINS AND AVOID ACCIDENTS.

Accident research thus seeks to devise new systems of safety and driving assistance thanks to better understanding of the sequence of events leading to an accident and the consequences of the accident.

Since 1969 the Laboratory for Accident analysis, Biomechanics and of Human Behaviour (LAB) has been researching the causes of accidents, vehicle behaviour on collision, and the consequences for the human body (see sheet).

LAB was created jointly by Renault and PSA Peugeot Citroën. Its data base, the only one of its kind in the world, holds information on over 13,500 vehicles and 26,000 people involved in accidents.

HOW DOES IT WORK?

When an accident is reported to the LAB, three investigators are sent within 15 minutes to the scene of the accident at the same time as the emergency teams. One of the investigators is a psychologist, who asks witnesses at the scene what they saw. Another is an expert who examines the

vehicles involved within 24 hours of the accident, while the third expert studies the road infrastructure at the scene of the accident. The aim of these analyses is to identify the mechanics of the accident, i.e. to isolate the combination of factors that caused it, how they fit together, and in what chronological order.

By gathering and cross-referencing information the LAB reconstructs and models the accident in its entirety. When a future safety system is under study, the modelled accident data will be used to test it and assess to what extent it can afford protection, or even avoid accidents.