

## WOMBATT Fatigue Management

### From Science to Zero – Fatigue Management Series 2022 - W 26

Review of recent scientific research papers on fatigue, and how to use the new knowledge in the field.

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### Increased vehicle automation results in increased risk of driver fatigue

#### Executive Summary

Earlier this year, in a world first, Germany approved the Daimler Benz SAE Level 3 Autonomy Drive Pilot for restricted use on German autobahns, i.e. heavy autobahn traffic conditions below 37 kph ([Link](#)) ([Link](#)). All other approved autonomous car systems worldwide are at Level 2 or lower. Autonomy Level 3 is the threshold from where the car does most of the driving, and the driver only steps in and takes over where necessary according to changing road conditions or personal preference ([Link](#)) This means the driver must remain alert at all times. At the same time, new research in Austria has shown that autonomous driving INCREASES the risk of driver fatigue ([Link](#)), so the imminent widespread introduction of Level 3 autonomy will make driver fatigue management even more important than at present. The study also found that younger drivers become more tired more quickly during autonomous driving than older drivers, especially at night. While somewhat counter intuitive, this is in line with earlier research showing that younger drivers are more at risk of fatigue during night driving than older drivers ([Link](#)).



#### Discussion

Autonomous driving is also coming to trucks. According to McKinsey, true Level 5 driverless trucks, minus a drivers cabin, may start appearing on US roads from 2027 onwards, and although there are lots of problems and issues that may delay that timing ([Link](#)), it is likely that Level 3 autonomous trucks will hit the highway earlier than Level 3 autonomous cars, driven by substantial business cost savings ([Link](#)). In the meantime, and for many years afterwards, we shall all need to deal with a combination of drivers and Level 3 semi-autonomous cars, trucks and pickups on the highway where the risk of driver fatigue is higher than at present. Anticipating the arrival of this Level 3 driving future, the EC has introduced a mandatory regulation that all new vehicles sold in the European Union from 2024 onwards must have fatigue management technology installed onboard ([Link](#)). But on-board fatigue technology, while essential, is not sufficient. In commercial operations where Level 3 trucks will soon be used, and where staff may drive home after work in Level 3 cars and pickups, drivers must be trained to avoid the causes of driver fatigue, which means in the first place ensuring sufficient sleep is obtained before driving, and if fatigued after a work shift, taking a power nap before attempting the drive home. Or taking a bus or alternative transport.

#### Management Action

- 1) Ensure all staff who will soon be driving Autonomy Level 3 vehicles either during shift or on the drive home, receive adequate fatigue training.
- 2) Systematically test workers for signs of fatigue before they attempt to drive home after their shift.
- 3) Pay particular attention to signs of fatigue in younger drivers, especially before they drive home.