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Summary:

Woken by rumble strips. Reports from drivers who have fallen asleep at the wheel

Rumble strips are seen by road safety planners as systematic interventions that may help prevent fatigue-related accidents. There is little evidence, however, for how or even whether rumble strips intervene to prevent specifically those accidents related to fatigue in real-world driving. We therefore asked drivers who actively recalled falling sleeping behind the wheel, about their interactions with rumble strips. Our analyses show that real-world driver experience supports claims that rumble strips act by reducing the severity of the consequences of fatigued driving. Most notably we found that significantly fewer sleep-behind-the-wheel incidents resulted in road departure accidents where rumble strips were present.

Self-report data were collected on the fatigue and rumble-strip experiences of 2567 Norwegian drivers. The share of drivers reporting they could recall sleeping or nodding off behind the wheel was 26 per cent. Responses of these "sleeping" drivers were then analysed to draw the following conclusions:

- Rumble strips were present in 28 per cent of cases of sleep behind the wheel.
- Rumble strips woke 64 per cent of those drivers sleeping on roads on which they are present.
- The share of sleep-behind-the-wheel incidents resulting in a road departure is lower if the sleep occurs in the presence (1.9 per cent) rather than absence (4.9 per cent) of rumble strips.
- There is little evidence that being woken by rumble strips "panics" the driver and results in more serious consequences (either driving off the road or into the opposite lane).
- It is likely that being woken by rumble strips increases the chance that the consequence of sleepy driving is less serious in nature i.e. driving outside the edge-line rather than off the road.

As far as we know, however, this is the first time that large-scale reports of real-world driver experiences can be used supplement evidence that rumble strips reduce accident numbers by reducing the severity of consequences specifically of fatigue-related driving.

In considering the findings it should be remembered that they are based on driver recall; and in particular that the saliency of rumble strips in the memory may depend on whether or not the driver drove over them.

We therefore recommend that these findings be used in conjunction with objective studies that to further inform about the mechanism of rumble strip effects, so that rumble strips may be more effectively deployed by road authorities in the future.

The report can be ordered from:
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