



# Coffee and driver fatigue

## 1. Summary

- Fatigue is a major factor in a large proportion of road accidents in Europe.
- Drinking caffeinated coffee is proven to improve alertness and concentration, which is essential for safe driving.
- While existing road safety guidelines remain a priority, the use of caffeinated beverages, such as coffee, could be a useful adjunct strategy in the maintenance of alertness while driving.

## 2. Driver fatigue

Driver fatigue is an issue that can affect all drivers, young and old, from professional drivers to people working at night and holiday travellers. The issue has been widely researched and this document summarises some of the key findings.

There are over 1.3 million road accidents in the EU each year, causing an estimated 3 million injuries<sup>1</sup>. Driver fatigue is a serious problem and estimated to be responsible for up to 20% of road accidents each year<sup>2</sup>. These types of accidents are about 50% more likely to result in death or serious injury as they tend to be high speed impacts because a driver who has fallen asleep cannot brake or swerve to avoid or reduce the impact<sup>3</sup>. Sleepiness reduces reaction time - a critical element of safe driving. It also reduces vigilance, alertness and concentration so that the ability to perform attention-based activities, such as driving, is impaired. The speed at which information is processed is also reduced by sleepiness and the quality of decision-making may also be affected<sup>3</sup>.

Research by the European Commission has found that a person who drives after being awake for 17 hours doubles their risk of crashing<sup>4</sup>. Despite this, 23% of drivers say they have felt extreme fatigue whilst driving and 3% have fallen asleep at the wheel<sup>4</sup>.

## 3. Caffeinated coffee and driving

There is convincing evidence that drinking coffee, a natural source of caffeine, can help to improve alertness and concentration. In fact, caffeinated coffee and a short nap have been shown to be the most effective countermeasures to alleviate driver fatigue<sup>5</sup>:

- One study on the efficacy of coffee versus napping on night-time highway driving, found that drinking 1-2 cups of caffeinated coffee is as effective as a 30 minute nap in reducing driving impairment without altering neither the quality of subsequent sleep nor the time taken to fall asleep<sup>6</sup>.
- An older study reported that a 30 minute break including a short nap (less than 15 minutes)
- 1-2 cups of caffeinated coffee were very effective at combating fatigue<sup>7</sup>, and even more so when the two were combined<sup>5</sup>.
- Research has also shown that drinking 1-2 cups of caffeinated coffee reduced the number of driving incidents in a simulated driving test, following sleep deprivation or restriction<sup>8</sup>.
- A recent study found that subjective driving quality during a simulated 2 hour monotonous highway driving test was significantly improved in the first hour after consuming a single cup of caffeinated coffee<sup>9</sup>.
- A case-control study showed caffeinated beverages, such as coffee, to be associated with a reduced risk of crashing for long distance commercial motor vehicle drivers<sup>10</sup>.
- Another study found caffeinated coffee consumption significantly improved the performance of night driving in both young and middle-aged drivers, suggesting that aging does not reduce the effectiveness of caffeine<sup>11</sup>.

For more information on coffee, caffeine and alertness, [click here](#).



# Coffee and driver fatigue

## 4. Conclusion

Research suggests that drinking 1-2 cups of caffeinated coffee can improve alertness and concentration whilst driving. This is supported by a recent opinion by the European Food Safety Authority (EFSA), which states that a 75mg serving of caffeine – the amount found in approximately one regular cup of coffee – leads to both increased attention and alertness<sup>12</sup>. Drivers should not fight fatigue, instead take a 30 minute break and have a cup of caffeinated coffee. The caffeine in coffee takes 15-20 minutes to take effect, providing enough time to take a short nap and research suggests that, when combined, a cup of caffeinated coffee and a nap are more effective at combating driver fatigue. While existing road safety guidelines remain a priority, the use of caffeinated beverages, such as coffee, could be a useful adjunct strategy to maintain alertness while driving.

## References

- 1 European Transport Safety Council. [www.etsc.eu/faq.php#1](http://www.etsc.eu/faq.php#1)
- 2 Portuguese Association of Sleep. [www.apsono.com/documentos/4f26d30c7a720APC\\_BROCHURA\\_SONO\\_NET2.pdf](http://www.apsono.com/documentos/4f26d30c7a720APC_BROCHURA_SONO_NET2.pdf)
- 3 Royal Society for the Prevention of Accidents. (2011) Driver Fatigue and Road Accidents Factsheet [www.rosipa.com/roadsafety/adviceandinformation/driving/driverfatigue/factsheet.aspx](http://www.rosipa.com/roadsafety/adviceandinformation/driving/driverfatigue/factsheet.aspx)
- 4 European Commission - Directorate General for Mobility and Transport. (2013) CARE EU road accidents database [http://ec.europa.eu/transport/road\\_safety/specialist/statistics/](http://ec.europa.eu/transport/road_safety/specialist/statistics/)
- 5 Reyner LA & Horne JA. (1997) Suppression of sleepiness in drivers: combination of caffeine with a short nap. *Psychophysiology*, 34:721
- 6 Philip P et al. (2006) The effects of coffee and napping on nighttime highway driving: a randomized trial. *Ann Intern Med*, 144:785
- 7 Horne J et al. (1999) Vehicle accidents related to sleep: a review. *Occup Environ Med*, 56:289
- 8 Reyner LA et al. (2000) Early morning driver sleepiness: effectiveness of 200 mg caffeine. *Psychophysiology*, 37:251
- 9 M Mets et al. (2012) Effects of coffee on driving performance during prolonged simulated highway driving. *Psychopharmacology*, 222:337
- 10 Sharwood LN et al. (2013) Use of caffeinated substances and risk of crashes in long distance drivers of commercial vehicles: case control study. *BMJ*, 346:1140
- 11 Sagaspe P et al. (2007) Aging and Nocturnal Driving: Better with a Coffee or a Nap? A Randomized Study. *SLEEP*, 30:1808
- 12 EFSA Panel on Dietetic Products, Nutrition and Allergies. (2011) Scientific Opinion on the substantiation of health claims related to caffeine and increased fat oxidation leading to a reduction in body fat mass (ID 735, 1484), increased energy expenditure leading to a reduction in body weight (ID 1487), increased alertness (ID 736, 1101, 1187, 1485, 1491, 2063, 2103) and increased attention (ID 736, 1485, 1491, 2375) pursuant to Article 13(1) of Regulation (EC) No 1924/2006. *EFSA Journal*, 9:2054