

# Is your convertible damaging your hearing?

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Driving convertible cars with the top open at speeds exceeding 88.5 kilometres per hour (55 miles per hour) may put drivers at increased risk of noise-induced hearing loss, according to new research published in The Journal of Laryngology and Otology, by Cambridge University Press on behalf of JLO (1984) Ltd from the Saint Louis University School of Medicine, Missouri and The Ear Institute of Texas, San Antonio.

The research was carried out using five different makes and models of car. Sound level measurements in 80 per cent of the cars at 88.5 kmph with the top down had maximum sound recordings greater than 85 decibels. Exposure of noise above 85 dB for prolonged periods is not recommended according to the US-based National Institute of Occupational Safety and Health. The higher the noise level, the shorter the recommended exposure time.

At 120.7 kmph (75 mph) the mean [noise exposure](#) inflicted on the driver of a convertible car driven with the top open was 89.9 decibels. Not only was the mean noise exposure excessive with the top open, but the driver was also exposed to extreme noise 'spikes' while driving on the highway; for example, when driving next to a motorcycle or lorry. The study was undertaken using a sound level meter operated by a passenger in each car tested. The passenger took a series of between eight to ten sound level measurements at various points in the journey from the position of the driver's left ear, at various speeds. During all data collection, the car radio was turned off, there was no conversation between occupants, air conditioning was turned off, the car horn was not used and there was no

rain or other inclement weather.

Drivers of convertible cars may also be exposed to additional noise when listening to the car radio. Even for comfortable listening, the radio volume levels required while driving under the conditions assessed in this study are likely to add significantly to the noise exposure level.

During the study, no excessive noise levels were recorded from any tested car driven with the top closed, meaning there is no more than minimal risk of excessive noise exposure when driving with the convertible top closed.

Dr A A Mikulec from the Saint Louis University School of Medicine, who oversaw the study, said: "When the convertible automobiles were driven with the top open, high levels of noise were consistently recorded. Although driving for short distances under such levels of noise exposure is unlikely to cause a significant degree of noise-induced hearing loss, our study demonstrates that long duration [driving](#) at high speeds with the convertible top open will increase the driver's risk of hearing damage."

"In light of the results of this study, we are recommending that drivers be advised to drive with the top closed when travelling for extended periods of time at speeds exceeding 85.3 kmph."

**More information:** To read the article in full, go to:  
[journals.cambridge.org/mikulec](https://journals.cambridge.org/mikulec)

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