

Why do some people 'hear' silent flashes?

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Up to one in five people may show signs of a synaesthesia-like phenomenon in which they 'hear' silent flashes or movement, according to a new study from City, University of London.

While the effect is barely known to science, the researchers found that

this 'visually-evoked auditory response' (vEAR) is far more common than other types of synaesthesia - such when certain sounds elicit a specific colour - with flashing lights and motion evoking vivid sounds.

The survival of this association may also explain other links between sound and vision, such as why we like to listen to music synchronised with flashing lights or dance.

The effect also provides a good way to learn about what's happening in the brain in people with synaesthesia, with vEAR's high prevalence making it easier to investigate the mechanisms behind such cross-sensory perception. The study is published in the journal *Cortex*.

While other typical synaesthesias are estimated to have an overall prevalence of 4.4 per cent, the vEAR effect has recently gained some prominence on social media following the rise of 'noisy GIFs', and in particular the 'thudding pylon' GIF which received thousands of retweets.

Its prevalence may be greater than other types because auditory and visual events are much more highly correlated in nature when compared to other types of [synaesthesia](#) associated with colour and visual forms.

To further investigate the prevalence of the phenomenon, the researchers carried out the first large-scale online study of this barely-known effect, and recruited 4,128 participants to answer a survey, with 1,058 of these also answering additional trait-related questions.

The survey included 24 silent video clips which depicted meaningful versus abstract subjects engagement in slow, fast, smooth or sudden movements. This included a ballet dancer performing a pirouette and a hammer hitting a nail. The survey also included additional multiple choice questions asking about demographics, experience of vEAR and

other traits.

As well as noting the significantly higher prevalence of the vEAR, with 21% of the 4,128 completing respondents saying that they had previously experienced vEAR, the researchers also found that even meaningless abstract visual stimuli can evoke vivid sounds.

It was seen that correspondents who had answered 'yes' to experiencing vEAR were specifically sensitive to the pure motion energy present in videos such as swirling or patterns that were not predictive of sounds. The researchers also saw that vEAR was associated with phenomena such as tinnitus and also musical imagery. This suggests that physiological factors such as raised cortical excitability in the brain might jointly explain these phenomena.

Speaking about the research, Dr Elliot Freeman, author of the study and a Senior Lecturer in Psychology at City, University of London, said:

"Some people hear what they see. Car indicator lights, flashing neon shop signs, and people's movements as they walk may all trigger an auditory sensation.

"Ours is the first large-scale survey of this ability. We found that as many as 21% of people may experience forms of this phenomenon, which makes it considerably more prevalent than other synaesthesias.

"We think that these sensations may sometimes reflect leakage of information from visual parts of the brain into areas that are more usually devoted to hearing. In extreme forms of this crosstalk, any abstract visual motion or flashing may be sufficient to trigger the sensation of hearing sounds."

Dr Christopher Fassnidge, who completed his PhD at City and is the

first author on the paper, said:

"This is an exciting insight into the different ways some of us perceive the world around us. The high prevalence of this phenomenon may make it easier for us to study and better understand the underlying mechanisms in the brain behind such synaesthetic effects. Our findings allow us to begin to build a picture of the types of people who may have this Visual Ear."

More information: Christopher J. Fassnidge et al, Sounds from seeing silent motion: Who hears them, and what looks loudest?, *Cortex* (2018). [DOI: 10.1016/j.cortex.2018.02.019](https://doi.org/10.1016/j.cortex.2018.02.019)

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