Imagining a face reactivates face-detecting neurons in humans

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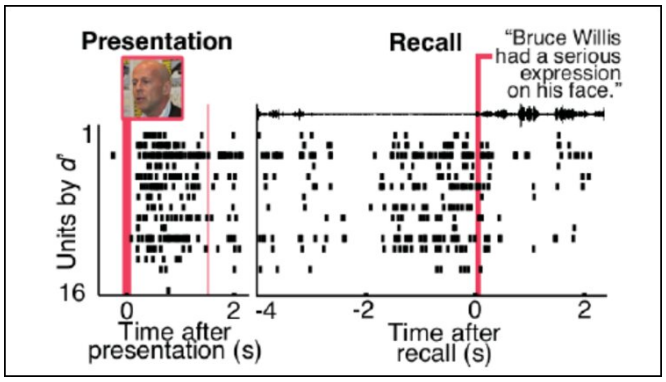

Face-selective neurons fire after seeing a face (left) and just before imagining a face (right). Credit: Khuvis et al., JNeurosci 2021

Face-sensitive neurons in humans employ distinct activity patterns to encode individual faces; those patterns reactivate when imagining the face, according to research recently published in *JNeurosci*.

Human social interaction hinges on faces. In fact, faces are so important that the brain contains entire regions in the ventral temporal cortex devoted to facial recognition. In humans, the fusiform facial area activates in response to faces, and monkeys have single neurons that fire when shown a face. However, experimental limitations have prevented us from knowing how the human brain responds to and processes faces at the level of the single neuron.

To close this gap, Khuvis et al. measured the electrical activity of neurons in the ventral temporal cortex of eight adults undergoing invasive epilepsy monitoring. The participants viewed images of faces and other objects and then tried to remember and describe as many as possible. Groups of face-sensitive neurons activated in unique patterns while the participants viewed faces. That same group of neurons reactivated in the same pattern when a participant envisioned one of the faces they saw. Based on the activity pattern, the researchers were able to decode which face a person was seeing—and even was thinking about.

More information: Face-Selective Units in Human Ventral Temporal Cortex Reactivate During Free Recall, *JNeurosci* (2021). DOI: 10.1523/JNEUROSCI.2918-19.2020

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