

# Why an exciting book is just as thrilling as a hair-raising movie

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Watching Keanu Reeves walk along the ledge of a skyscraper and lose his footing in *The Matrix* can make us skip a heartbeat or sweat, as if we were risking our own life. This sharing of other people's emotions in movies has been shown to depend on the fact that observers the same brain regions are activated in the observers when they feel an emotion and when they see someone else experience a similar emotion. We all know, however, that reading a book describing the same scene can be similarly gripping. This week, in a paper published in the online, open-access journal *PLoS ONE*, Mbemba Jabbi, Jojanneke Bastiaansen and Christian Keysers show us why.

At the NeuroImaging Center of the University Medical Center Groningen of the University of Groningen (the Netherlands), Jabbi and colleagues compared what happens in our brains when we view the facial expressions of other people with the brain activity as we read about emotional experiences.

"We placed our participants in an fMRI scanner to measure their brain activity while we first showed our subject short 3s movie clips of an actor sipping from a cup and then looking disgusted," said Christian Keysers. "Later on, we asked them to read and imagine short emotional scenarios; for instance, walking along a street, bumping into a reeking, drunken man, who then starts to retch, and realizing that some of his vomit had ended up in your own mouth. Finally, we measured their brain activity while the participants tasted unpleasant solutions in the scanner."

"Our striking result," said Keysers, "is that in all three cases, the same location of the anterior insula lit up. The anterior insula is the part of the brain that is the heart of our feeling of disgust. Patients who have damage to the insula, because of a brain infection for instance, lose this capacity to feel disgusted. If you give them sour milk, they would drink it happily and say it tastes like soda."

Prof. Keysers continued, "What this means is that whether we see a movie or read a story, the same thing happens: we activate our bodily representations of what it feels like to be disgusted– and that is why reading a book and viewing a movie can both make us feel as if we literally feel what the protagonist is going through."

In a world that is increasingly dominated by visual media, added Keysers, this finding is good news for the written media, in particular: reading a good book or an exciting newspaper article really can feel as emotionally vivid as watching a movie.

Citation: Jabbi M, Bastiaansen J, Keysers C (2008) A Common Anterior Insula Representation of Disgust Observation, Experience and Imagination Shows Divergent Functional Connectivity Pathways. PLoS ONE 3(8): e2939. doi:10.1371/journal.pone.0002939  
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