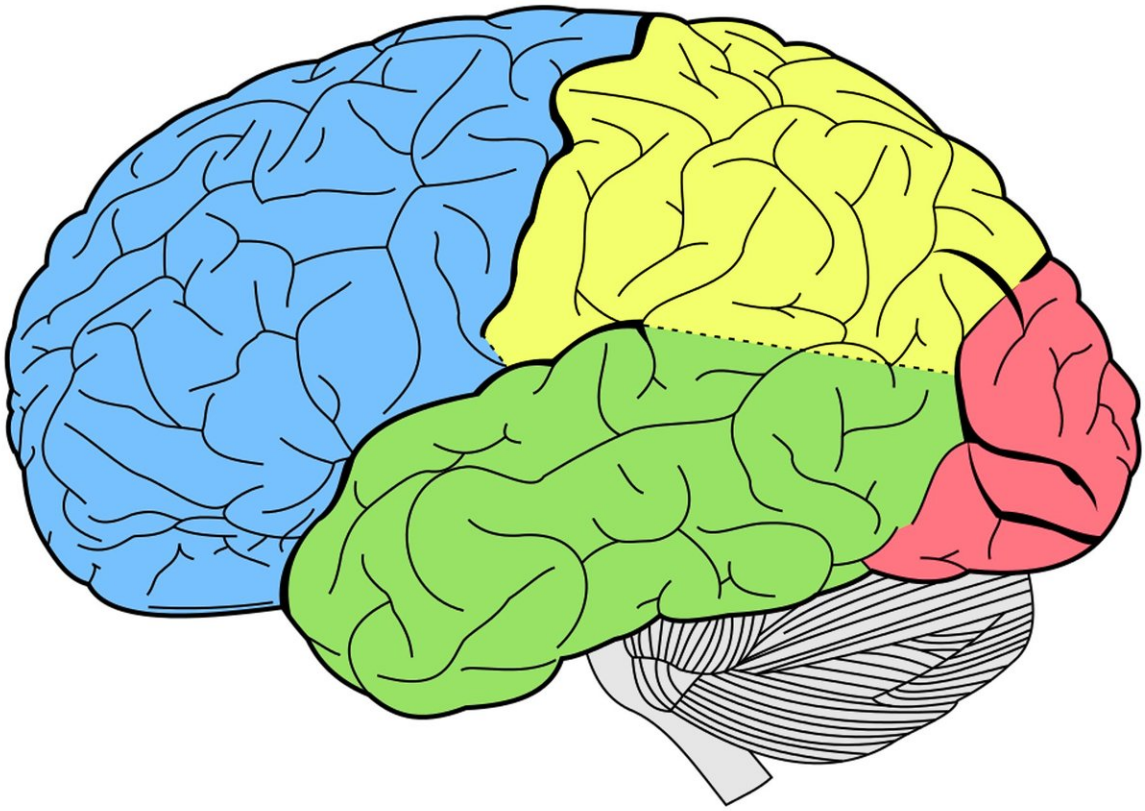
Brain scans may reveal most effective anti-drug messages

December 7 2017, by Jeff Grabmeier



Credit: CC0 Public Domain

What if you could look into the brains of potential drug abusers and see what messages would be most likely to persuade them to "just say no?"

That's the ultimate goal of researchers whose new study scanned the brains of people while they watched anti-drug public service announcements (PSAs).

The results provided new insights into how people at risk of drug use process anti-drug messages - and which messages they find most persuasive, said Richard Huskey, co-author of the study and assistant professor of communication at The Ohio State University.

"It is very difficult to ask potential drug users which anti-drug PSAs work best. They are generally very defensive and are apt to say that none of the messages is convincing," Huskey said.

"Even though they often say that none of the anti-drug messages are effective, their brains tell a different story."

Huskey conducted the study with J. Michael Mangus and René Weber, colleagues from the University of California, Santa Barbara, where he received his doctoral degree, and Benjamin Turner of Nanyang Technological University in Singapore.

The study appears in the December 2017 issue of the journal *Social Cognitive and Affective Neuroscience*.

For the study, 28 students at UCSB watched 32 real 30-second anti-drug PSAs while in an fMRI scanner. Half were at high risk of drug use and half were at low risk. Drug use risk was assessed with a validated self-report measure that the students had completed earlier.

Later, the participants rated each PSA on how strong its arguments against drug use were and on "perceived message sensation value" - how exciting the video was and how much it aroused the emotions and senses.

In analyzing the fMRI scans, the researchers looked specifically at connectivity patterns between different parts of the brain while the anti-drug messages played.

The researchers then took the results from these 28 fMRI participants and used them to predict how two large samples of people who weren't scanned, but who did watch the same 32 PSAs, would rate the effectiveness of the messages. One group was 599 college students and the other was a nationally representative sample of 601 adolescents in the United States. These larger groups also included people who were at high risk for drug use and low risk.

Results showed that the self-report data alone from the high-risk fMRI participants couldn't accurately predict if the larger groups of high-risk participants would say that any individual PSA was effective.

That's not surprising, Huskey said, since drug users often either misidentify which messages are most effective or say that all the messages were equally ineffective.

But when the researchers combined the self-report data from the high-risk fMRI participants with their brain scan data, they could do a much better job at predicting which PSAs the larger groups of at-risk participants would find persuasive.

Specifically, they found that fMRI-measured connectivity between two parts of the brain - the middle frontal gyrus and the superior parietal lobe - significantly improved the accuracy in predicting which PSAs were most effective with this at-risk group.

But the fMRI scans among low-risk subjects didn't help improve predictions of which videos participants would find most effective.

"That's because low-risk subjects are accurately telling us which messages are most effective with them," Huskey said.

"We don't need fancy technology to figure out which messages work best for people who are at low risk - we can just ask them."

This study alone can't say exactly which messages will work with all people at risk of abusing drugs, Huskey said. In fact, the results suggest that there may be different types of drug users who will respond to different types of messages.

The important point is that "we found neural evidence that people at risk for drug use are processing these anti-drug messages differently than other viewers," he said.

"Some of the follow-up work we're doing is to better understand the various dimensions that put people at risk of using drugs so we can tailor messages in a more targeted way. This is just the first step in figuring out how to design messages that will be effective in discouraging drug use in these high-risk people."

More information: Richard Huskey et al. The persuasion network is modulated by drug-use risk and predicts anti-drug message effectiveness, *Social Cognitive and Affective Neuroscience* (2017). DOI: 10.1093/scan/nsx126

Provided by The Ohio State University

Citation: Brain scans may reveal most effective anti-drug messages (2017, December 7) retrieved 3 May 2024 from https://medicalxpress.com/news/2017-12-brain-scans-reveal-effective-anti-drug.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.