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Is Politics All in the Mind?

Teaser: Political partisanship has a neurobiological basis, a new study shows. It is predicted by the way our brains process basic political words or concepts.

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[Article Body:]

Do conservative and liberal brains work differently? What once might have been a semi-serious topic for kitchen-table discussions of political differences has burgeoned into a lively area of research for neural scientists. Increased ability to observe brain structure and function makes this possible, but the motivation comes from the sharply more partisan political landscape of the past few decades. Communication and cooperation between parties are essential to the functioning of government and society; if political polarization arises or becomes embedded in our brain's deep wiring, understanding how becomes a matter of great importance.

A recent [study](#) exploring this timely area comes from the Carney Institute for Brain

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Science at Brown University and takes off from [previous research](#) showing that polarization isn't simply a matter of two political camps consuming information from different sources; exposure to opposing perspectives can actually reinforce cognitive biases, suggesting that these have a neurobiological origin.

The researchers—Daantje de Bruin, Jeroen M. van Baar, Pedro L. Rodríguez, and Oriol FeldmanHall—hypothesized that like-minded partisans interpret events the same way because they represent and experience political content similarly as well. In other [recent studies](#), political allies demonstrated synchronized neural dynamics when they consumed the same political content, but that doesn't explain what drives the similarity. The Brown researchers [trace](#) it back to something more basic: the “semantic representations” our brains create to express similarities and organize knowledge. Polarization is triggered not by how the two sides in the abortion debate argue their position, but by individuals' emotional response to the word “abortion” itself, and the associations it carries for them: all of which occur in the brain, and specifically, the striatum and amygdala, the “regions involved in encoding value and emotional content.”

The researchers' objective was to determine whether a shared representation of political words in the brain predicts a shared ideological affinity. They recruited 44 individuals, evenly split between liberals and conservatives, to perform two exercises: one reading, the other watching videos while undergoing functional magnetic resonance imaging (fMRI), which measures brain activity by detecting changes associated with blood flow. The first exercise was behavioral—taking place outside the brain—and the other was neural—taking place inside the brain.

In the first exercise, participants were presented with 60 words, including “abortion,” “addiction,” “American,” “health care,” “police,” “immigration,” and “welfare,” mixed with a series of animals and objects, and asked to press a button to indicate whether each word was political or nonpolitical. They then sorted each word based on its semantic or associational similarity, producing clusters around hot-button topics like immigration and abortion and politically loaded concepts like Americanness.

The second exercise asked the participants to watch three videos, two of which were included in the analysis: a neutrally worded PBS NewsHour report on abortion legislation, and a politically contentious clip from the 2016 vice-presidential debate between Democrat Tim Kaine and Republican Mike Pence. The fMRI data revealed a close connection between individuals' ideological bent and the patterns of activity in the striatum when they heard the words “immigration” and “American,” for example.

Conservatives shared one pattern of neural activity when processing the word “abortion,” and liberals exhibited another.

Those who showed greater “temporal synchronization of neural states” in response to particular words were likely to have demonstrated a similar political slant in the reading exercise as well. This dovetailed with a [previous study](#) which found that conservatives associated abortion with terms like “right to life,” “murder,” and “personhood,” while liberals associated them with “freedom to choose,” “women’s rights,” and “personal autonomy,” among others.

Polarization appears to involve a third area of the brain as well. When participants in the [Brown study](#) viewed the segment of the vice-presidential debate on immigration, ideologically like-minded individuals exhibited similar neural activity not just in areas of the brain concerned with value and emotional content, but also in the dorsomedial prefrontal cortex (dmPFC), which is where mentalizing—the process by which we form a sense of self—takes place. According to the researchers, this means that the affective experiences taking place in the striatum and amygdala, shaped by our ideologies, help determine our most basic sense of who we are.

What the researchers found especially telling was that the results were the same regardless of context. One of the best-known theories of political polarization argues that it results from constant exposure to the same sources of information and opinion; once we engage with a particular set of news or social media outlets, we find ourselves in an echo chamber or informational community that binds us ever more tightly. In theory, exposure to other sources, or different framing of the issues, can reduce partisanship and allows us to process information more dispassionately.

The Brown study suggests this is not the case. In the reading exercise, the words were presented with no context at all; in the video-watching exercise, one of the clips was nonpartisan, the other highly partisan. And yet, the participants grouped the words and responded to them neurologically in the same way. Shared semantic representation, in other words, was the determining factor in both exercises. Or, to put it more simply, “political polarization is driven by how individuals emotionally experience and come to value political information,” the researchers [conclude](#). A word like “immigration” carries the same emotional weight for political partisans, no matter how or where we encounter it. Some words or issues elicit a stronger reaction than others, depending on the current political climate. The strongest polarized response in the Brown study came from the word “immigration,” for example, with “abortion” a close second and “police” trailing.

Individuals who made the same associations with immigration in the reading exercise tended to have the same response to the word in the amygdala. The researchers chalk this up to the fact that they collected their data in early 2019, just a few months after the Trump administration proposed the Build the Wall, Enforce the Law Act, which made immigration the hot-button political topic of the moment. Had they carried out their research later, the Black Lives Matter movement or the Supreme Court's decision to abandon *Roe v. Wade* might have produced a different result.

These differences in response underscore an important cautionary point, the researchers say: that political content is complex “and typically ignited in naturalistic conditions” such as watching TV or engaging with social media. Many factors come into play in determining our response when we are bombarded with a constant stream of stimulation involving highly emotional issues. But the Brown study suggests that three factors are most important: semantic representation of key words or concepts; how we segment that information into meaningful units (like immigration or abortion); and the blood flow responses, captured by fMRI, that they trigger.

This does not mean that conservative and liberal brains are different; the process of polarization works the same way no matter how one identifies politically. What the Brown study reveals instead is how deeply our brains absorb semantic representations, and how powerfully they shape our political ideology through our neural processes. If we want to restore civility and cooperation between political parties, our task is more complex than finding the right frame in which to discuss the issues.