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THE GRAPEVINE

The Desire For Revenge And How We Control Acting On It

Aug 22, 2018 06:23 AM By Sadhana Bharanidharan



Whether or not we act on the urge to get revenge may be determined by activity levels in the prefrontal dorsolateral cortex. *Antony Xia/Unsplash*

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Don't get mad, get even — a specific part of our brain ultimately decides whether we follow the saying.

Most of us have experienced some form of betrayal at some point in our lives. However you

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were wronged, it is safe to assume that you might have felt something under your skin, urging you to punish the responsible person or persons.

To understand how our brain deals with this thirst for revenge, researchers from the University of Geneva (UNIGE) in Switzerland developed and tested an economic game. Their [study](#) titled "Distinct Brain Areas involved in Anger versus Punishment during Social Interactions" was published in the journal Scientific Reports on July 12.

Many studies on this subject depend on participants recalling anger and aggression they felt in the past. But researcher Olga Klimecki-Lenz wanted to observe the live reaction of the brain when a person was angered — and this is where the inequality game comes in.

Twenty-five people were recruited to play the game while the team simultaneously observed their brain activity with an MRI scanner. In the game, the participant engages in financial interactions with two players. But what he or she does not know is that the behavior of both players is actually pre-programmed.

"One is friendly, offers the participant only mutually beneficial financial interactions and sends nice messages, while the other player makes sure to multiply only his own profits, going against the participant's interest and sending annoying messages," Klimecki-Lenz [explained](#).

In the first phase of the game, the participant controls the distribution of profits. Overall, most people played fair, according to the researchers. But in the second phase, the participant has to submit to the decisions of the other two players. This is when they were provoked by the unfair player and asked to rate their anger on a scale of 1 to 10.

In the final phase of the game, the participant is in charge once again. This time around, more than half the players ended up taking revenge for what the unfair player did to them but continued being nice to the fair player.

The higher the level of anger participants reported, the stronger activity researchers observed in the superior temporal lobe as well as the amygdala. But researchers also identified another distinct area known as the prefrontal dorsolateral cortex (DLPFC). It was described by Klimecki-Lenz as a zone which is key for the regulation of emotions.

When the activity in this zone was high during the second phase, the participants were less likely to punish the unfair player. On the other hand, those who had low DLPFC activity were more likely to engage in an act of revenge against the unfair player.

Further research may broaden these findings, to figure out if vengeful behavior in people can be decreased or even suppressed by increasing the levels of DLPFC activity via transcranial magnetic stimulation.

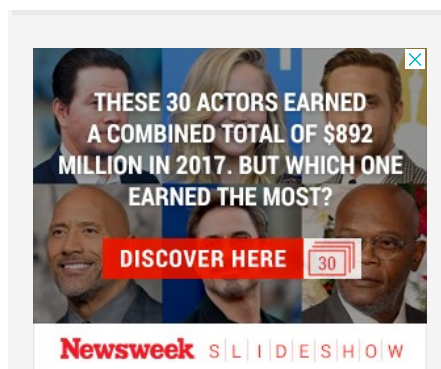


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