

# When you take acetaminophen, you don't feel others' pain as much

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Baldwin Way. Credit: Ohio State University

When you take acetaminophen to reduce your pain, you may also be decreasing your empathy for both the physical and social aches that other people experience, a new study suggests.

Researchers at The Ohio State University found, for example, that when participants who took [acetaminophen](#) learned about the misfortunes of others, they thought these individuals experienced less [pain](#) and suffering, when compared to those who took no painkiller.

"These findings suggest other people's pain doesn't seem as big of a deal to you when you've taken acetaminophen," said Dominik Mischkowski, co-author of the study and a former Ph.D. student at Ohio State, now at the National Institutes of Health.

"Acetaminophen can reduce empathy as well as serve as a painkiller."

Mischkowski conducted the study with Baldwin Way, who is an assistant professor of psychology and member of the Ohio State Wexner Medical Center's Institute for Behavioral Medicine

Research; and Jennifer Crocker, Ohio Eminent Scholar in Social Psychology and professor of psychology at Ohio State. Their results were published online in the journal *Social Cognitive and Affective Neuroscience*.

Acetaminophen - the main ingredient in the painkiller Tylenol - is the most common drug ingredient in the United States, found in more than 600 medicines, according to the Consumer Healthcare Products Association, a trade group.

Each week about 23 percent of American adults (about 52 million people) use a medicine containing acetaminophen, the CHPA reports.

In an earlier study, Way and other colleagues found that acetaminophen also blunts positive emotions like joy.

Taken together, the two studies suggest there's a lot we need to learn about one of the most popular over-the-counter drugs in the United States.

"We don't know why acetaminophen is having these effects, but it is concerning," said Way, the senior author of the study.

"Empathy is important. If you are having an argument with your spouse and you just took acetaminophen, this research suggests you might be less understanding of what you did to hurt your spouse's feelings."

The researchers conducted two experiments, the first involving 80 [college students](#). At the beginning, half the students drank a liquid containing 1,000 mg of acetaminophen, while the other half drank a placebo solution that contained no drug. The students didn't know which group they were in.

After waiting one hour for the drug to take effect, the participants read eight short scenarios in which someone suffered some sort of pain. For example,

one scenario was about a person who suffered a knife cut that went down to the bone and another was about a person experiencing the death of his father.

Participants rated the pain each person in the scenarios experienced from 1 (no pain at all) to 5 (worst possible pain). They also rated how much the protagonists in the scenarios felt hurt, wounded and pained.

Overall, the participants who took acetaminophen rated the pain of the people in the scenarios to be less severe than did those who took the placebo.

A second experiment involved 114 college students. As in the first experiment, half took acetaminophen and half took the placebo.

In one part of the experiment, the participants received four two-second blasts of white noise that ranged from 75 to 105 decibels. They then rated the noise blasts on a scale of 1 (not unpleasant at all) to 10 (extremely unpleasant).

They were then asked to imagine how much pain the same noise blasts would cause in another anonymous study participant.

Results showed that, when compared to those who took the placebo, participants who took acetaminophen rated the noise blasts as less unpleasant for themselves - and also thought they would be less unpleasant for others.

"Acetaminophen reduced the pain they felt, but it also reduced their empathy for others who were experiencing the same noise blasts," Mischkowski said.

In another part of the experiment, participants met and socialized with each other briefly. Each participant then watched, alone, an online game that purportedly involved three of the people they just met. (The other participants weren't actually involved).

In the "game," two of the people the participants had met excluded the third person from the activity.

Participants were then asked to rate how much pain and hurt feelings the students in the game felt, including the one who was excluded.

Results showed that people who took acetaminophen rated the pain and hurt feelings of the excluded student as being not as severe as did the participants who took the placebo.

"In this case, the [participants](#) had the chance to empathize with the suffering of someone who they thought was going through a socially painful experience," Way said.

"Still, those who took acetaminophen showed a reduction in empathy. They weren't as concerned about the rejected person's hurt feelings."

While these results had not been seen before, they make sense in the light of previous research, Way said.

A 2004 study scanned the brains of people as they were experiencing pain and while they were imagining other people feeling the same pain. Those results showed that the same part of the brain was activated in both cases.

"In light of those results, it is understandable why using Tylenol to reduce your pain may also reduce your ability to feel other people's pain as well," he said.

The researchers are continuing to study how acetaminophen may affect people's emotions and behavior, Way said. They are also beginning to study another common pain reliever - ibuprofen - to see if it has similar results.

Provided by The Ohio State University

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