

The soothing effects of strangers

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Is pain treatment more helpful if it is provided by a friend, or is the help of a stranger better? A study conducted by researchers from the Universities of Wuerzburg, Amsterdam and Zurich investigated this question and found that people experience stronger pain relief if they are treated by a person from a different social group.

The study has been published in the latest issue of the *Royal Society of London B: Biological Sciences*. It was led by Grit Hein, a psychologist, neuroscientist and professor of Translational Social Neuroscience at the Center of Mental Health of the Würzburg University Hospital who teamed up with Jan B. Engelmann (Amsterdam) and Philippe N. Tobler (Zurich).

"Participants experienced induced [pain](#) on the back of their hand. In one group of [participants](#), this pain was relieved by a person from their own social group, and another group of participants received [pain relief](#) from a person from a different group. We measured how the pain relief [treatment](#) changed neural pain responses and subjective pain judgments." Grit Hein describes the scientists' approach.

Treatment by a stranger was more efficient

The result: "Before the treatment, both groups showed similarly strong responses to pain," Grit Hein explains. "In contrast, after being treated by what they considered a '[stranger](#),' the participants from this group rated their pain less intense than the other group. The effect was not limited to the subjective pain experience: "We also saw a reduction of the pain-related activation in the corresponding brain regions," the scientist says.

Perhaps surprising to the lay person, the finding is in line with a core principle of learning theory according to which people learn particularly well when the results differ significantly from what they had expected. This is called "prediction error learning" in psychological language, in which the surprise contributes to "rooting" the new experience more effectively in the brain.

"The participants who received pain relief from an outgroup member had not expected to actually get effective help from this person," the

neuroscientist explains. And the less the participants had anticipated positive experiences, the bigger their surprise when the pain actually subsided and the more pronounced the reduction of their pain responses. "Of course, this finding still needs to be verified outside the laboratory," says Grit Hein. " But it could be relevant for the clinical context, where treatment by nurses and doctors from different cultures is common today."

More information: Pain relief provided by an outgroup member enhances analgesia, *Proceedings of the Royal Society B*, [rspb.royalsocietypublishing.org1098/rspb.2018.0501](https://royalsocietypublishing.org/doi/10.1098/rspb.2018.0501)

Provided by University of Würzburg

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