

Feeling disgust may enhance our ability to detect impurities

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Disgust – it's an emotion we experience when we encounter things that are dirty, impure, or otherwise contaminated. From an evolutionary standpoint, experiencing the intense, visceral sense of revulsion that comes with disgust presumably helps us to avoid contaminants that can make us sick or even kill us. But new research suggests that disgust not only helps us to avoid impurities, it may also make us better able to see them.

If something looks dirty and disgusting, we typically assume it's contaminated in some way; when something is white, however, we are more likely to assume that it's clean and pure. Research has shown that people from many different cultures hold this association between lightness and purity, which may explain why we prefer white teeth, white operating rooms, and white porcelain bathroom fixtures.

"In the psychology of purity, even the slightest deviation from a pure state (i.e., [whiteness](#)) is an unacceptable blemish," observe psychological scientist Gary Sherman and his co-authors.

They hypothesized that if feeling [disgust](#) motivates people to create or protect pure environments, it may also lead them to prioritize the light end of the visual spectrum. For people trying to preserve cleanliness and purity, the ability to distinguish even slight deviations from a light shade like white may become particularly important.

Sherman, who is now at Harvard University's Kennedy School of

Government, and his co-authors investigated this hypothesis in three studies, in which they tested participants' ability to make subtle gray-scale discriminations in both ends of the [light spectrum](#). Their findings are published in [Psychological Science](#), a journal of the Association for Psychological Science.

In their first study, 123 college students were presented with sets of rectangles. In each set of four rectangles, one rectangle was either slightly darker or slightly lighter than the others. The participants were asked to indicate which of the four rectangles in each set was different from the other three. After completing the discrimination task, they completed a survey that measured their overall sensitivity to disgust.

In general, the students were better at identifying the rectangle that stood out when the rectangles were presented on the dark end of the visual spectrum. But the researchers observed a significant relationship between participants' performance on the light end of the spectrum and their levels of trait disgust – people who showed higher sensitivity to disgust also showed better performance on the light end of the spectrum relative to the dark end. Importantly, this effect was specific to disgust, as there was no such relationship between participants' levels of trait fear and their discrimination performance.

These findings were confirmed in a second study, showing that students who reported greater disgust sensitivity were better at distinguishing a faint number set against a background of a nearly identical shade presented on the light end of the [visual spectrum](#) relative to the dark end.

Based on these findings, Sherman and his co-authors wondered whether disgust might actively influence what people perceive. Based on the idea of perceptual tuning, they hypothesized that inducing disgust would actually "tune" participants' visual perception, enhancing their ability to discriminate among small deviations in lightness.

In the third study, participants were presented with a slide show of emotional images designed to elicit either disgust (i.e., images of cockroaches, trash) or fear (i.e., images of a handgun, an angry face). They then completed another perceptual discrimination task.

Just as in the first two studies, greater trait disgust predicted better performance on light-end trials relative to performance on dark-end trials. But the emotional images had different effects depending on the participants' disgust sensitivity. For participants who were low on trait disgust, viewing disgusting images seemed to have no effect on their discrimination performance on either end of the spectrum. For participants who were highly sensitive to disgust, however, viewing disgusting images significantly enhanced their performance on light-end trials.

"Research on the experience-altering nature of emotion has typically focused on nonperceptual experience, such as changes in cognitive appraisals. It is clear, however, that these influences extend to perception," the researchers conclude.

Together, the three studies provide evidence for an interactive relationship between disgust sensitivity and perceptual sensitivity that may ultimately help us detect and avoid the germs, toxins, and other [contaminants](#) around us.

Provided by Association for Psychological Science

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