Erotic images, gore cause temporary "blindness"

If your partner seems to be ignoring you after a flash of nudity on the television screen, it might not be his or her fault. New research indicates that people shown erotic or gory images frequently fail to process what they see immediately afterwards.

Portions of the research exploring this effect by Vanderbilt University psychologist David Zald and Yale University researchers Steven Most, Marvin Chun and David Widders will be published in the August issue of Psychonomic Bulletin and Review.

“We observed that people fail to detect visual images that appeared one-fifth of a second after emotional images, whereas they can detect those images with little problem after neutral images,” Zald, assistant professor of psychology and member of the Vanderbilt Kennedy Center for Research on Human Development, said.

Anyone who has ever slowed down to look at an accident as they are driving by—or has been stuck behind someone who
has—is familiar with the “rubbernecking” effect. Even though we know we need to keep our eyes on the road, our emotions of concern, fear and curiosity cause us to stare out the window at the accident and slow to a crawl as we drive by.

Zald and his colleagues set out to determine if the rubbernecking effect carries over into more minute lapses of attention through two separate experiments.

In the first experiment, research subjects were shown hundreds of pictures that included a mix of disturbing images along with landscape or architectural photos. They were told to search the images for a particular target image. An irrelevant, emotionally negative or neutral picture preceded the target by two to eight items. The closer the negative pictures were to the target image, the more frequently the subject failed to spot the target. In a subsequent study, which has not yet been published, the researchers substituted erotic for negative images and found the same basic effect.

“We think that there is essentially a bottleneck for information processing and if a certain type of stimulus captures attention, it can basically jam up that bottleneck so subsequent information can’t get through,” Zald said. “It appears to happen involuntarily.”

Previous studies have demonstrated that there are limits to how much information we can hold in our visual short-term memory and that we often miss visual images that pass right before our eyes if we are paying attention to something else. The new research indicates that we can also miss what we are searching for if we are shown an unexpected image that impacts us emotionally, a situation the researchers call “emotion-induced blindness.”

This effect can explain some common human behaviors. “If you are simply driving down the road and you see something that is sexually explicit on a billboard, the odds are that it is going to capture your attention and for a fraction of a second afterwards, you are going to be less able to pay attention to the other information in your environment,” Zald said. “So you might not see that car coming at you or the person crossing the street because your bottleneck has been jammed.”

In the second experiment, the researchers sought to determine if individuals can override their emotion-induced blindness by focusing more deliberately on the target for which they are searching. In this

experiment, the subjects undertook two different trials. In one they were told specifically to look for a rotated photo of a building; in the other they were told to look for a rotated photo of either a building or a landscape.

The research team hypothesized that the more specific instruction—to look for the building only—would help the research subjects override their emotion-induced blindness. After running the tests, the researchers discovered that they were partially right: specific instructions helped some subjects control their attention, but it didn't help others.

Furthermore, the researchers determined that the subjects' ability to control their attention was directly linked to the aspect of their personalities that involves their reaction to negative or frightening stimuli, assessed by using a scale that measured their levels of harm avoidance. Those who score high on this scale are more fearful, careful and cautious. Those who score low are more often carefree and more comfortable in dangerous or difficult situations. The researchers found that those with low harm avoidance scores were better able to stay focused on the targets than those with high harm avoidance scores.

Zald believes one explanation for the differences in performance during the experiment is that individuals that tend to be more harm avoidant have more trouble disengaging from emotional images than their more carefree counterparts, causing their attention to linger on an emotional image even though it is no longer visible.

"We increasingly are suspicious that people who are more neurotic or harm avoidant may not be detecting negative stimuli more than other people, but they have a greater difficulty suppressing that information," Zald said.

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