Depression affects visual perception

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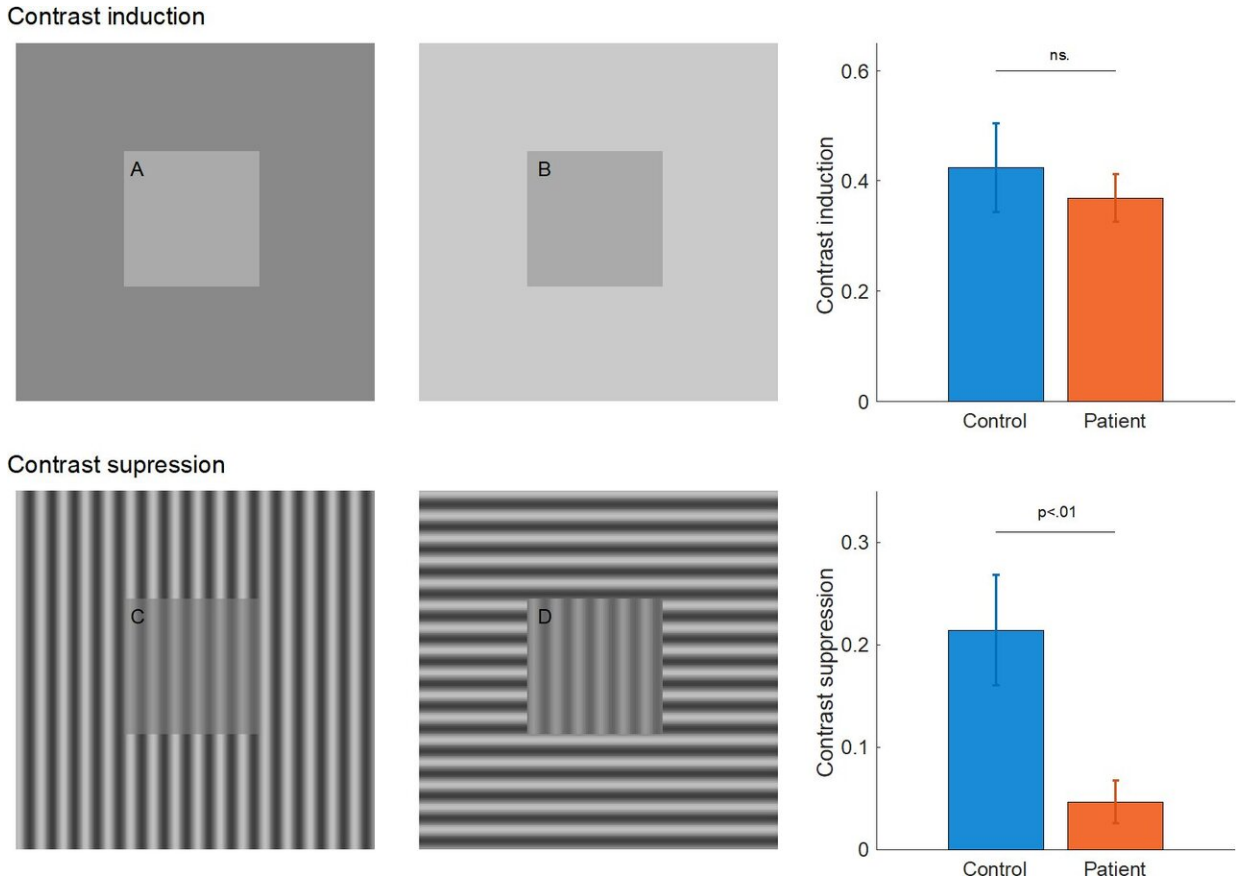

The brightness of figures A and B is exactly the same, but they are perceived differently due to a difference in the background. This illusion was perceived similarly by the patients and healthy control subjects. The contrast of figures C and D is exactly the same as well, but they are perceived differently. The perception of this illusion was weaker among the depressed patients than the control subjects. Credit: University of Helsinki

Researchers specializing in psychiatry and psychology at the University of Helsinki investigated the effects of depression on visual perception. The study confirmed that the processing of visual information is altered in depressed people, a phenomenon most likely linked with the processing of information in the cerebral cortex.

The study was published in the *Journal of Psychiatry and Neuroscience*.

In the study, the processing of visual information by patients with depression was compared to that of a control group by utilizing two visual tests. In the perception tests, the study subjects compared the brightness and contrast of simple patterns.

"What came as a surprise was that depressed patients perceived the contrast of the images shown differently from non-depressed individuals," says Academy of Finland Research Fellow Viljami Salmela.

Patients suffering from depression perceived the visual illusion presented in the patterns as weaker and, consequently, the contrast as somewhat stronger, than those who had not been diagnosed with depression.

"The contrast was suppressed by roughly 20% among non-depressed subjects, while the corresponding figure for depressed patients was roughly 5%," Salmela explains.

Identifying the changes in brain function underlying mental disorders is important in order to increase understanding of the onset of these disorders and of how to develop effective therapies for them.

This is why the researchers consider it necessary to carry out further research on altered processing of visual information by the brain caused

by depression.

"It would be beneficial to assess and further develop the usability of perception tests, as both research methods and potential ways of identifying disturbances of information processing in patients," Salmela says.

Perception tests could, for example, serve as an additional tool when assessing the effect of various therapies as the treatment progresses.

"However, depression cannot be identified by testing visual perception, since the observed differences are small and manifested specifically when comparing groups," Salmela says.

More information: Viljami Salmela et al. Reduced visual contrast suppression during major depressive episodes, *Journal of Psychiatry and Neuroscience* (2021). DOI: 10.1503/jpn.200091

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