

Short-term use of opioids increases subjective pleasure

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The human opioid system contributes to the regulation of emotions, pleasure and pain. Opioids are strong analgesics. In addition to effectively relieving pain, external opioids may improve mood and reduce negative emotions. However, not much has been known about the effect of opioids on emotional responses caused by external stimuli.

Together with their colleagues from Aalto University and the University of Turku, researchers from the University of Helsinki and the Hospital District of Helsinki and Uusimaa have examined the effects of remifentanyl, an opioid, and naloxone, an opioid antagonist, on emotional responses evoked by pleasant and unpleasant film clips.

31 healthy adult men aged 20 to 35 years completed a set of subjective emotional rating questionnaires and then received intravenous remifentanyl, placebo and naloxone. The subjects were blinded to the sequence of the infusions. During each infusion, participants saw ten film clips and rated their experience of pleasure and emotional arousal.

"Remifentanyl significantly increased the experience of pleasure caused by the film clips, but not feelings of emotional arousal. This shift was seen across stimuli that were both unpleasant and pleasant," explains Tarja Heiskanen, MD, a specialist in anaesthesiology at the Hospital District of Helsinki and Uusimaa.

Naloxone shifted ratings of emotional experiences towards neutral, but the effect did not significantly differ from placebo.

"It appears that short-term opioid use increases the positivity of emotional experiences by intensifying feelings of [pleasure](#) and weakening negative emotional [experiences](#). This may be among the reasons resulting in the onset of dependence after the first instances of opioid use," Heiskanen notes.

"All in all, our findings indicate that emotional responses to [external stimuli](#) are mediated by the endogenous opioid system."

The researchers emphasise that the effect of opioids on [emotional responses](#) and mood changes is different when opioids are used for longer periods.

"Prolonged [opioid](#) use alters the reward system of the brain, diminishing its sensitivity. Consequently, emotional reactivity is blunted and the risk of depression increased."

More information: Tarja Heiskanen et al, The opioid agonist remifentanyl increases subjective pleasure, *British Journal of Anaesthesia* (2019). [DOI: 10.1016/j.bja.2019.03.031](https://doi.org/10.1016/j.bja.2019.03.031)

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