Medical Xpress

Kisspeptin hormone enhances brain response to sexual and emotional images

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Credit: BemDevassa/Wikipedia

The scientists behind the early-stage study, from Imperial College London, are now keen to explore whether kisspeptin could play a part in treating some psychosexual disorders—sexual problems which are psychological in origin, and commonly occur in patients with infertility. The work was funded by the National Institute for Health Research, the

Wellcome Trust and the Medical Research Council.

Kisspeptin is a naturally occurring hormone that stimulates the release of other reproductive hormones inside the body. The study involved a double-blind, placebo-controlled trial in which 29 healthy heterosexual young men were given either an injection of kisspeptin or placebo. In an MRI scanner the men were shown a variety of images, including sexual and non-sexual romantic pictures of couples, whilst researchers scanned their brains to see how kisspeptin affected the brain's responses.The researchers found that after the injection of kisspeptin, when the volunteers were shown sexual or romantic images of couples, there was enhanced activity in structures in the brain typically activated by sexual arousal and romance.The team believe this shows kisspeptin boosts behavioural circuits associated with sex and love. They are particularly interested in how kisspeptin might be able to help people with psychosexual disorders and related problems with conceiving a baby.

NIHR Research Professor Waljit Dhillo, the lead author of the research from the Department of Medicine at Imperial College London, said: "Most of the research and treatment methods for infertility to date have focussed on the biological factors that may make it difficult for a couple to conceive naturally. These of course play a huge part in reproduction, but the role that the brain and emotional processing play in this process is also very important, and only partially understood." As the research is at an early stage, the team of researchers now want to do a follow on study to analyse the effects of kisspeptin in a larger group, including women as well as men.

Professor Dhillo added: "Our initial findings are novel and exciting as they indicate that kisspeptin plays a role in stimulating some of the emotions and responses that lead to sex and reproduction. Ultimately, we are keen to look into whether kisspeptin could be an effective treatment for psychosexual disorders, and potentially help countless couples who

struggle to conceive."

Volunteers in the study underwent MRI scans at the Imanova Centre for Imaging Sciences and were shown sexual and non-sexual romantic, negative, and neutral-themed images, and images of happy, fearful and neutral emotional faces. Kisspeptin did not appear to alter emotional brain activity in response to neutral, happy or fearful-themed images. However, when volunteers were shown negative images, kisspeptin did enhance activity in brain structures important in regulating negative moods, and study participants reported a reduction in negative mood in a post-scan questionnaires. As a result, the team are also interested in investigating the possibility that kisspeptin might be used for treating depression.

Dr Alexander Comninos, first author of the study from the Department of Medicine at Imperial, said "'Our study shows that kisspeptin boosts sexual and romantic brain activity as well as decreasing negative mood. This raises the interesting possibility that kisspeptin may have uses in treating psychosexual disorders and depression which are major health problems which often occur together, but further studies would be needed to investigate this."

More information: Alexander N. Comninos et al, Kisspeptin modulates sexual and emotional brain processing in humans, *Journal of Clinical Investigation* (2017). DOI: 10.1172/JCI89519

Provided by Imperial College London