

Vocab

Monogamous = dedicated and loyal to one mate in a relationship
either "for life" or just during that mating season

Polygamous = promiscuous, has many mates, is a "player", unfaithful

Guiding journal questions

- Do you think humans are more monogamous or polygamous?
- What factors affect whether someone is more monogamous or polygamous (explain)?
- How do feelings of "love" relate to monogamy and polygamy?

Watch the video: <https://www.youtube.com/watch?v=pA4w--HP7tc>

- Describe the GMO (genetically modified organism, either adding a gene or removing a gene) that was used test whether or not the voles are monogamous/polygamous because of their genes ("nature")
- Describe an experiment that would test whether or not the voles are monogamous/polygamous because of how they're raised ("nurture").
- What did you learn from their vole experiment?

Read the article: <http://www.newscientist.com/article/dn14641-monogamy-gene-found-in-people.html#.VTAvqfnF-Sr>

- What did you learn from the Sweden study?

Guiding journal questions

- How does it make you feel to know that feelings of "love" and bonding can be influenced by your genes?
- How does this affect your view on relationships?
- Would you want to know whether your girl/boyfriend has the mutated version of the oxytocin receptor gene? Would you want to know if you had the mutation or not?
- What are the pro's and con's of having the technology (like in GATTACA) for people to *easily* see which genes you have?
- What new thoughts or questions do you have now?

Monogamy gene found in people

By Priya Shetty

What if you could tell whether a man is husband material just by peering at his genes?

There has been speculation about the role of the hormone vasopressin in humans ever since we discovered that variations in where receptors for the hormone are expressed makes prairie voles strictly monogamous but meadow voles promiscuous; vasopressin is related to the “cuddle chemical” oxytocin. Now it seems variations in a section of the gene coding for a vasopressin receptor in people help to determine whether men are serial commitment-phobes or devoted husbands.

[Hasse Walum](#) at the Karolinska Institute in Stockholm, Sweden, and colleagues looked at the various forms of the gene coding for a vasopressin receptor in 552 Swedish people, who were all in heterosexual partnerships. The researchers also investigated the quality of their relationships.

They found that variation in a section of the gene called *RS3 334* was linked to how men bond with their partners. Men can have none, one or two copies of the *RS3 334* section, and the higher the number of copies, the worse men scored on a measure of pair bonding.

Not only that, men with two copies of *RS3 334* were more likely to be unmarried than men with one or none, and if they were married, they were twice as likely to have a marital crisis.

Commitment phobia

Given that everyone surveyed had been in their relationship for at least five years, the team suggests that having multiple copies somehow contributes to commitment problems in men. Because the results were collected for a different study the team couldn't quiz the men on whether they were faithful, says Wallum.

It is not clear exactly how multiple copies of *RS3 334* affect expression of the vasopressin receptor, and our most intimate relationships. And yet that's the most interesting question, says [Thomas Insel](#), director of the National Institute of Mental Health in Bethesda, Maryland.

In some animals, the theory is that the brain has two “motivational” systems: one for reward, the other for social perception. In [prairie voles](#) and marmosets, receptors for the two systems sit on adjacent cells, so social activity is highly rewarding, leading to monogamy. To see if the same mechanism is at work in people will mean using tissue from post-mortems to map where vasopressin receptors lie, to see if variations are linked to the number of copies of *RS3 334*.

RS3 334's social effects extend beyond bonding in couples. Earlier this year, the same gene section was shown to affect signalling in people's amygdalas, linked to trust. Another study found that people with autism, which is characterised by unusual social behaviour, often have multiple copies of *RS3 334*.

Walum's colleague [Paul Lichtenstein](#) says the team's next task is to test how a nasal vasopressin spray affects altruism and jealousy.

Journal reference: [Proceedings of the National Academy of Sciences](#), DOI: [10.1073/pnas.0803081105](https://doi.org/10.1073/pnas.0803081105)