

Grieving voles hint at why human relationships last

[Click to Print](#)

15:31 15 October 2008

[NewScientist.com news service](#)

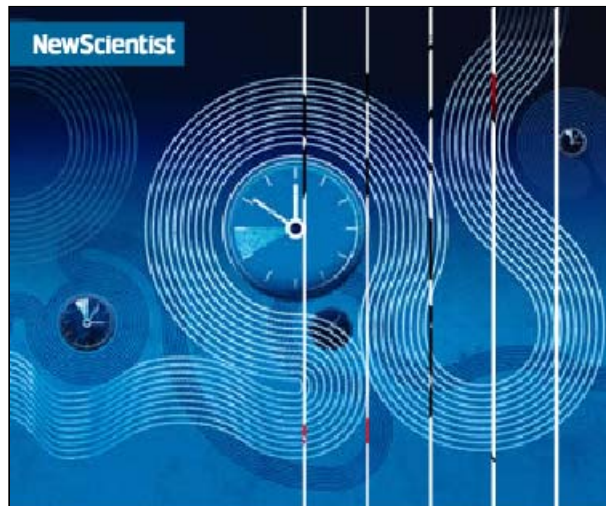
[Jessica Griggs](#)

Grief could be nature's way of keeping couples together, say neurobiologists.

Using one of nature's only monogamous mammals, the prairie vole, as a model for human attachment, [Larry Young](#) from the Emory University School of Medicine in Georgia and [Oliver Bosch](#) from the University of Regensburg, Germany, looked at the role stress plays in the grieving process.

They paired 18 male voles with females and 20 males with males for five days, enough time for male and female to mate and form an enduring attachment to each other. Half of each group was then separated from its partner and their "mental state" assessed.

Males that were separated from their female partner showed behaviour reminiscent of depression and anxiety in humans, say the researchers. They spent more time floating rather than swimming when dunked in water and struggled for less time when held upside down by the tail, compared with those voles that had been separated from another male. In vole terms, this means that they showed less will to fight against stressful situations.



High-stress voles

The bonded voles also had double the level of the stress hormone corticosterone in their blood, suggesting that CRF, the brain peptide that regulates the stress response, has a role to play in the grieving process.

The effects seen here are very different from those of isolation, says Young. "When the animals lose their bonded partner, the CRF system becomes overactive. In nature this can be a good thing because this stress response makes them seek out their partner again, helping to maintain a stable relationship." If this overactivity lasts for a long period of time then that may lead to behaviours like depression, he speculates.

"What we are tapping into here is the flip side of the attachment bond," Young says. "Pleasure sensors of the brain are activated when couples are together but there is another mechanism involved with the stress of being parted."

That loving feeling

This stress could explain what keeps couples together after many years when that giddy, "in love" feeling has passed, and why couples stay together even when the relationship has turned abusive.

The same theory would apply to parent-child relationships and other close attachment relationships in humans, says psychiatrist [Sue Carter](#) of the University of Illinois at Chicago.

[Katherine Shear](#), a psychiatrist from Columbia University, told **New Scientist**: "This study holds promise of providing a model for studying bereavement that can be very important. Currently we have no effective medication for people who are struggling with prolonged periods of debilitating grief. This work does provide early promise of developing such an approach."

Journal reference: *Neuropsychopharmacology*, DOI: 10.1038/npp.2008.154

Related Articles

[Monogamy gene found in people](#)

<http://www.newscientist.com/article.ns?id=mg19926724.500>

[03 September 2008](#)

['Cuddle chemical' could treat mental illness](#)

<http://www.newscientist.com/article.ns?id=mg19826561.900>

[14 May 2008](#)

[Do animals have emotions?](#)

<http://www.newscientist.com/article.ns?id=mg19426051.300>

[23 May 2007](#)

[Dopamine blockers lead faithful voles astray](#)

<http://www.newscientist.com/article.ns?id=dn8412>

[04 December 2005](#)

Weblinks

[Larry Young, Emory University School of Medicine](#)

<http://research.yerkes.emory.edu/Young/larry.html>

[Oliver Bosch, University of Regensburg](#)

<http://www.biologie.uni-regensburg.de/Zoologie/Neumann/de/mitarbeiter/mit/boo.htm>

[Sue Carter, University of Illinois at Chicago](#)

<http://www.psych.uic.edu/faculty/Carter.htm>

[Katherine Shear, Columbia University](#)

<http://www.columbia.edu/cu/ssw/faculty/profiles/shear.html>

[Close this window](#)

Printed on Wed Oct 15 16:02:14 BST 2008