

# In cancer-ridden rats, loneliness can kill

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Socially isolated female rats develop more tumors -- and tumors of a more deadly type -- than rats living in a social group, according to researchers at Yale University and the University of Chicago.

The dramatic increase in mammary tumors among isolated Norway [rats](#) — which, like humans, are a highly social species — illustrates how loneliness can be deadly, the authors report in findings to be published the week of December 6 in the [Proceedings of the National Academy of Sciences](#).

"There is a growing interest in relationships between the environment, emotion and disease. This study offers insight into how the social world gets under the skin," said Gretchen Hermes, first author of the paper and a resident in the Neurosciences Research Training Program in the Yale Department of Psychiatry.

The leading suspect seems to be stress, triggered by being separated from a group. Stress is linked to many negative health outcomes—including activation of cancer-promoting genes. The research team, led by senior author Martha K. McClintock at the University of Chicago, had previously shown that fearful and anxious rats were more prone to tumors and death. The new study shows that [social isolation](#) and neglect can trigger the fear and anxiety responsible for this susceptibility to cancer.

To test the hypothesis, researchers followed the development of spontaneously occurring mammary tumors in rats that lived in groups or

in isolation. Although both the solitary and social animals developed tumors, the isolated rats developed 84 times the amount of tumors as those living in groups. Those tumors also proved to be more malignant than those found in rats living in groups.

The results show that health effects of isolation need to be studied more closely in a broad range of human disease, particularly [psychiatric disorders](#), Hermes said.

"The costs of social neglect have unique relevance for psychiatric patients, the natural history of [psychiatric illness](#) and the profound co-morbidities associated with mental disease," she said. "The results of this study make a physiological link between loss of the social network and disease states, and may help explain the shortened life expectancy of individuals with mental illness."

Source: Yale University ([news](#) : [web](#))

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