

Fruit flies sick from mating

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Fruit flies. Credit: Ted Morrow

Mating can be exhausting. When fruit flies mate, the females' genes are activated to roughly the same extent as when an immune reaction starts. This is shown in a study at Uppsala University that is now appearing in the scientific publication, *Journal of Evolutionary Biology*.

Using a combination of behavioral studies and genomic technology, so-called microarrays, researchers at Uppsala University can show how fruit fly females are affected by mating.

"We monitor how genetic expression is impacted by mating and show that the most common process that is affected is the immune defense system," says Ted Morrow at the Department of Ecology and Evolution,

Uppsala University.

What's more, the cost of mating turns out to be rather high.

"Previous research findings show that if this cost were not a factor, females would produce 20 percent more offspring," says Ted Morrow.

It is costly for females to mate because competition among males has led to behaviours and adaptations in males that are injurious to females, such as harassment during mating rituals and toxic proteins in their sperm fluid.

"Our results are the strongest evidence that the cost to females is probably tied to the cost of starting an immune reaction. In other words, the males are like a 'sickness' to females," says Ted Morrow.

We can thus conclude the following from the study: the immune defence has developed to combat not only pathogens but also substances produced by males. This lends new meaning to the term 'lovesick.'

More information: "Immunogenic males: a genome-wide analysis of reproduction and the cost of mating in *Drosophila melanogaster* females" P. INNOCENTI & E. H. MORROW Department of Animal Ecology, Evolutionary Biology Center, Uppsala University, Uppsala, Sweden DOI: 10.1111/j.1420-9101.2009.01708.x
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