

Contact with 'rivals' changes male behavior

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Males consistently change their mating behaviour depending on whether they have spent time with other males before mating, according to new findings by scientists at the University of East Anglia (UEA).

Publishing today in the journal [Proceedings of the Royal Society B](#), the researchers studied how male *Drosophila melanogaster* - or [fruit flies](#) - change their mating behaviour in response to their social environment.

Previously, the UEA team had found that in a single mating, males exposed to male [rivals](#) prior to mating mated for significantly longer and produced more offspring than those held alone. In the new research they explored whether males could change their behaviour when exposed to a series of different social environments, by repeatedly switching whether males encountered a male rival.

They found that males could accurately match their behaviour to their most recent social environment, but that they were less good at matching their 'investment' in [offspring](#).

"We found that the behaviour of male fruit flies was remarkably sophisticated, and consistently changed depending on the amount of [male competition](#) in their environment," said lead author Prof Tracey Chapman of UEA's School of [Biological Sciences](#).

"Generally, those males exposed to other males prior to mating reproduced more successfully than those who had not. It is difficult to directly extrapolate from one species to another, but our study provides

useful insights into how a male's [social environment](#) can affect his success as a father."

The most likely reason for the changes in mating behaviour is that males put more effort into mating when they expect to face competition and when there is a high chance that their mate will mate again with another male. If the male does not expect competition, because he has not detected any other males in his environment, he does not need to invest so much effort and so saves his resources for future matings.

The findings will be useful in situations where improvements in male fertility are desirable, such as in agriculture, in biological control of pest species, and in conservation breeding programs. In the future, this new information could enable the manipulation of socio-sexual environments to improve mating success and fertility.

More information: 'Individual plastic responses by males to rivals reveal mismatches between behaviour and fitness outcomes' by A Bretman (UEA), J Westmancoat (UEA), M Gage (UEA) and T Chapman (UEA) is published online today by the journal *Proceedings of the Royal Society B*.

Provided by University of East Anglia

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