

Sexual reproduction brings long-term benefits, study shows

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Courtship rituals can be all-consuming, demanding time and effort – but now scientists have discovered why it might be worth it.

Attracting a mate – which can take significant effort, such as in a peacock's show of feathers or the exhaustive rutting of stags – can produce benefits for a species in the long term, a study suggests.

Scientists have shown that animals and plants which reproduce sexually are at a considerable advantage to those species – such as some insects and reptiles – that reproduce without a partner.

Researchers at the University of Edinburgh studied [sexual reproduction](#) in tiny fruit flies to learn more about how DNA is randomly shuffled when the genes of two parents combine to create a new individual.

They found that this recombination of genetic material allows for damaging elements of DNA – which might cause disease or other potential drawbacks – to be weeded out within a few generations. Individuals who inherit healthy genes tend to flourish and pass on their DNA to the next generation, while weaker individuals are more likely to die without reproducing.

The findings, made possible by genome sequencing technology, provide strong evidence to back up a long-standing theory that sexual reproduction, rather than asexual cloning of an individual, has long-term benefits for a species.

Scientists studied how the DNA of fruit flies is affected when the recombination of DNA does not occur. They found that harmful DNA quickly accumulates, making the species weaker overall in the long term.

Researchers say the findings may help inform the development of crop species with high yields. The study, published in *Genome Biology and Evolution*, was supported by the UK Biotechnology and Biological Sciences Research Council and the Natural Environment Research Council.

Provided by University of Edinburgh

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