

Unattractive guppies have better sperm

June 7 2010, by Lin Edwards



Male and female guppies (*Poecilia reticulata*). Image: Wikipedia.

(PhysOrg.com) -- Scientists studying tropical guppies have discovered that the less colorful and attractive males have better quality sperm, while the attractive fish invest in their appearance at the expense of sperm quality.

The findings of the study, carried out by Professor Jonathan Evans of the University of Western Australia's Centre for Evolutionary Biology, support the sperm competition theory, which predicts a male's [reproductive success](#) depends on both his ability to win mates and on the ability of his sperm to compete effectively for fertilization. The sperm competition theory predicts there will be a trade-off between investment in sperm qualities and other reproductive traits, such as appearance.

Professor Evans said the tiny tropical freshwater guppies (*Poecilia*

reticulate), which bear live young, are useful for studying [reproductive behavior](#) because they are promiscuous and they engage alternately in consensual courtship displays and also in non-consensual “sneak” mating. Guppies also practice polyandry, which means females mate with several males, and the successful male is the one with the fastest and highest quality sperm.

The study found males had a strong [genetic predisposition](#) for one reproductive strategy over the other, and the choice of strategy was strongly integrated genetically with the quality of sperm and the degree of ornamentation. Those males favoring courtship displays were more brightly colored and ornamented (and therefore considered by the researchers to be more attractive), but their sperm were slower swimming than in the less ornamented males preferring non-consensual mating.

Little was previously known about the [genetic basis](#) of reproductive trade-offs such as those found in the [guppies](#), and the study found the genetic variations and linked variations support the sperm competition theory.

The tropical guppy, or millionfish, is one of the most popular home aquarium fish in the world, probably because of the bright coloring of the males, which can have multi-colored spots, stripes or patches. The wild guppy females are a dull gray and spend most of their adult lives pregnant.

The research findings are reported in the journal *Proceedings of the Royal Society B*.

More information: Jonathan P. Evans, Quantitative genetic evidence that males trade attractiveness for ejaculate quality in guppies, *Proceedings of the Royal Society B*, Published online before print May

26, 2010, [doi:10.1098/rspb.2010.0826](https://doi.org/10.1098/rspb.2010.0826)

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