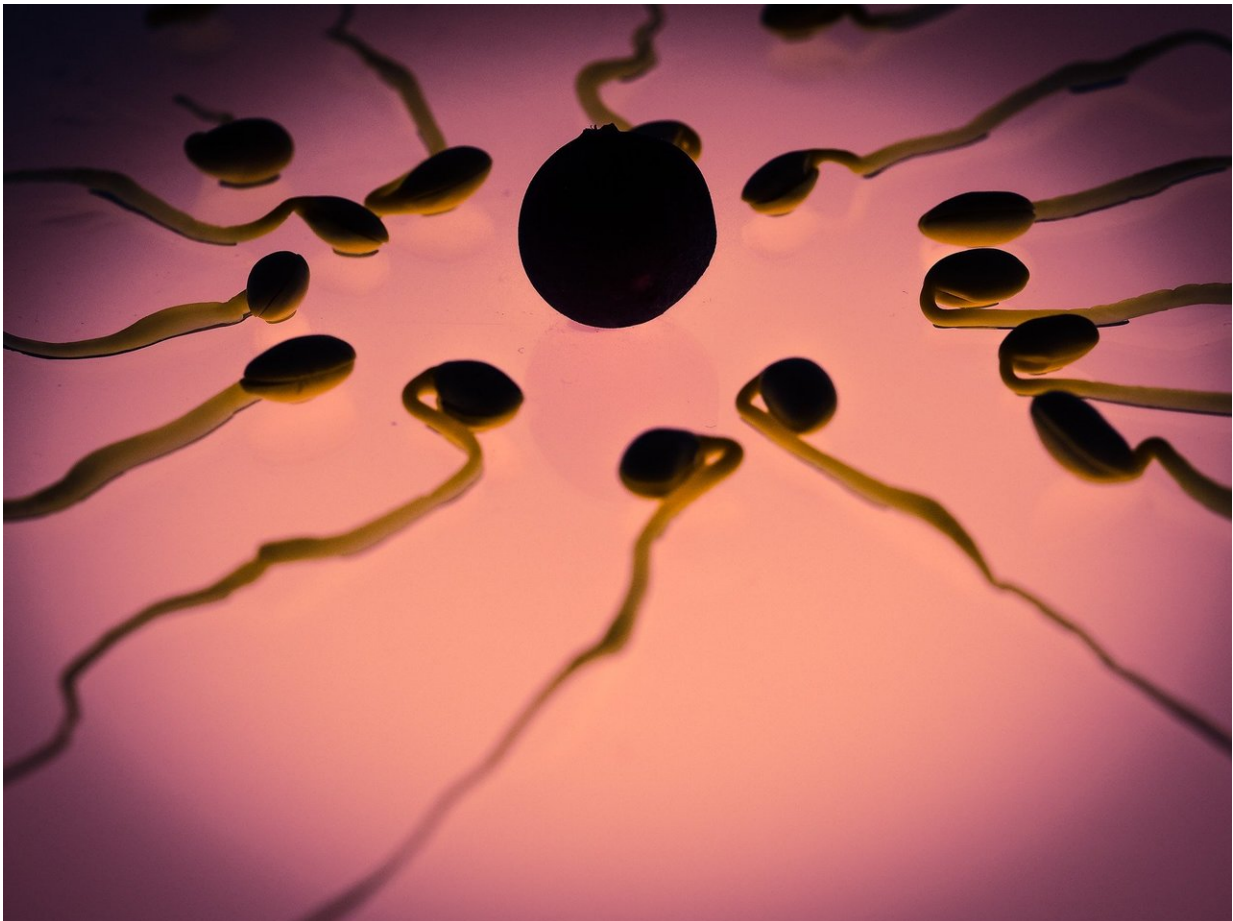


# Competition leads to fathers who produce more male sperm

July 1 2019, by David Stacey

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New research led by The University of Western Australia has shown that

the social conditions that a male experiences while growing up can influence the amount of X and Y chromosome sperm that he produces as an adult.

The findings, published in *Evolution Letters*, provide insight into how exposure to other males during [sexual maturity](#) may influence the sex of male mice's offspring later in life.

Although in mammals it is X or Y chromosome [sperm](#) that produces a boy or a girl, males have traditionally been ignored as active players when it comes to the sex of their offspring because fertilization occurs within the female.

The senior author of the study Dr. Renée Firman, an ARC Research Fellow in UWA's School of Biological Sciences, said that the results had important implications for ways in which a father's developmental history may influence the gender of his children.

"We knew from our previous research on mice that male exposure to different social conditions during development leads to changes in fertility," Dr. Firman said.

"We experimentally controlled the exposure that males had to other individuals during development. In one environment we exposed males to other males to create the perception that there was strong male competition for a female mate.

"In a second environment, males were exposed only to females, so male competition was negligible. We found that males that had grown up in a competitive social environment produced more sperm and better quality sperm."

During the study, Dr. Firman and her team performed a similar

experiment with mice, but used a specialized genetic technique to measure the proportion of X and Y chromosome sperm, the so-called "sperm sex ratio," that males produce.

"We found that males exposed to a competitive environment during development produced larger numbers of Y sperm compared to [males](#) subjected to a non-[competitive environment](#)," she said.

Co-author Dr. Paco Garcia-Gonzalez, a senior researcher at the Doñana Biological Research in Spain, said that it was the first study to demonstrate that the sperm sex ratio was sensitive to a father's social [environment](#).

**More information:** Lavoie, M. D., et al. 2019. Exposure to male-dominated environments during development influences sperm sex ratios at sexual maturity. *Evolution Letters*, in press

Provided by University of Western Australia

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