

Time-restricted fasting could cause fertility problems

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Time-restricted fasting diets could cause fertility problems according to new research from the University of East Anglia.

A new study published today (April 11) in *Proceedings of the Royal Society B: Biological Sciences* shows that time-restricted fasting affects reproduction differently in male and female zebrafish. It is titled, "Fasting increases investment in soma upon refeeding at the cost of gamete quality in zebrafish."

Importantly, some of the negative effects on [eggs](#) and [sperm quality](#) can be seen after the fish returned to their normal levels of [food consumption](#).

The research team say that while the study was conducted in fish, their findings highlight the importance of considering not just the effect of fasting on weight and health, but also on fertility.

Prof Alexei Maklakov, from UEA's School of Biological Sciences, said, "Time-restricted fasting is an eating pattern where people limit their food consumption to certain hours of the day. It's a popular health and fitness trend and people are doing it to lose weight and improve their health.

"But the way organisms respond to [food shortages](#) can affect the quality of eggs and sperm, and such effects could potentially continue after the end of the fasting period.

"We wanted to find out more about how these sorts of diets can affect fertility in a popular model organism."

The research team studied zebrafish (*Danio rerio*) to find out what happens when individuals are exposed to food during and after a period of fasting. They measured how males and females allocate resources to body maintenance versus production and maintenance of sperm and eggs, and the quality of the resulting offspring.

Dr. Edward Ivimey-Cook, from UEA's School of Biological Sciences, said, "What we found is that time-restricted fasting affects reproduction differently in males and females. Once the fish returned to their normal feeding schedule, females increased the number of offspring they produced at the cost of egg quality resulting in reduced quality of offspring. The quality of male sperm also decreased.

"These findings underscore the importance of considering not just the effect of fasting on body maintenance but also on the production of eggs and sperm.

"Importantly, some of the negative effects on eggs and sperm quality can be seen after the animals returned to their normal levels of food consumption following time-restricted fasting.

"More research is needed to understand how long it takes for sperm and egg quality to return back to normal after the period of [fasting](#)."

This study was led by the University of East Anglia in collaboration with researchers at the Center for Environmental, Fisheries and Aquaculture Science (Cefas).

More information: Fasting increases investment in soma upon refeeding at the cost of gamete quality in zebrafish, *Proceedings of the Royal Society B: Biological Sciences* (2023). [DOI: 10.1098/rspb.2022.1556](https://doi.org/10.1098/rspb.2022.1556). royalsocietypublishing.org/doi/10.1098/rspb.2022.1556

Provided by University of East Anglia

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