

# Saltwater crocodile sperm may hold secret to male fertility

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Saltwater crocodiles may help solve male infertility after a remarkable discovery that crocodile sperm, after leaving the testes, behave differently than previously thought.

New research has demonstrated that like [human sperm](#), Australian saltwater crocodile [sperm](#) continues to mature outside the testes. The finding has significant implications for both human fertility and animal conservation.

University of Newcastle (UON) Professor Brett Nixon said the new finding had enabled his team to study key sperm proteins linked to motility – the ability of sperm to swim.

"We can gain important insights into the maturation of human sperm from the investigation of species in which this process is less complicated. The study of crocodile sperm has enabled us to identify key proteins involved in motility and we can manipulate the activity of these proteins to increase the ability of sperm to swim and ultimately fertilize an egg," said Professor Nixon.

Approximately one in 20 men experience fertility issues, however only one in 100 produce no sperm at all.

Professor Nixon said the research could have significant implications for assisted reproductive technologies.

"Human sperm only becomes fully mature and capable of fertilizing an egg during its journey through and interaction with the female genital tract, so its ability to make that journey or 'swim' is crucial. We are studying the activation of key proteins associated with 'swimming' ability."

The research could also have major implications for the conservation of endangered crocodylians, almost half of which are currently listed as vulnerable or endangered species. As crocodile breeding habits and gender are temperature dependent, a warming climate could result in the birth of only female crocodiles.

"Nest temperature of 32-33 degrees Celsius results in male offspring, anything below or above tends to favour female hatchlings and may also be associated with higher mortality rates, so a warmer climate could have serious consequences for crocodiles."

The research will help to assist captive breeding programs, offering a buffer against climate change related threats.

"We're now working towards a technology to be able to artificially inseminate [crocodiles](#)," said Professor Nixon.

The research could also help to improve genetics for commercial crocodile farmers, similar to the cattle industry.

Crocodile semen for study was collected by Professor Nixon's research partner, Associate Professor Stephen Johnston from the University of Queensland using a digital massage technique that he has pioneered.

"I'm no Crocodile Dundee – wrangling 4m long saltwater crocs is not something I envisioned myself doing when I started out in this field. Gratefully, my research partner Stephen and the Koorana crocodile farm

take care of this part of the process," said Professor Nixon.

**More information:** [rspb.royalsocietypublishing.org ...  
.1098/rspb.2016.0495](https://rspb.royalsocietypublishing.org/doi/10.1098/rspb.2016.0495)

Provided by Newcastle University

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