

Female mice reduce investment in offspring when they perceive a threat of infanticide

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Male mice are known to kill unrelated pups, which for the mothers represents a large waste of investment. When exposed to the scent of an unfamiliar male in early pregnancy, female mice undergo a pregnancy block (known as the Bruce effect) and do not progress with the pregnancy. This is believed to be an adaptation to prevent wasting investment in pups that are likely to be killed by the new male. However, female mice can only undergo a pregnancy block in early pregnancy, therefore we wanted to know what happens when females are exposed to an unfamiliar male in late pregnancy.

So, we mated females to one male and then exposed them to the presence and scent of an unfamiliar male in late pregnancy. We have found that when the female mice are exposed to the smell of an unfamiliar male in late pregnancy they reduce their investment in lactation to potentially prevent wasting their investment on doomed pups.

These pups are then found to be smaller at the end of lactation, however, once they can feed themselves they accelerate their growth rate and catch-up to normal size by adulthood. Here we also find that this catch-up growth has consequences for the offspring in the form of oxidative damage (the result of a build-up of oxidants that are usually mitigated by anti-oxidants).

This means that when the dominant male in wild populations of mice is



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overturned, this event can affect not only the females present but the growth and development of their pups. It also means that female mice are capable of strategically altering their investment in pups in relation to their perceived chances of offspring survival.