

Should I eat the kids? When to care for, abandon, or eat your offspring

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Caring females such as wolf spiders often consume their young.

It is difficult to see how filial cannibalism, the consumption of one's own offspring, can be an adaptive evolutionary strategy. It is, however, common in many animals, and surprisingly is often coupled with parental care, according to a report published by Oxford University Zoologist Dr Michael Bonsall, and Hope Klug from the University of Florida, in this month's *American Naturalist*.

Funded by the Royal Society and the National Science Foundation, "When to care for, abandon, or eat your offspring: the evolution of parental care and filial cannibalism," highlights the potential importance of a range of factors in the evolution of filial cannibalism using a mathematical model of analysis. It is potentially affected by the ability to selectively consume lower quality offspring, preferences associated with mate choice, density-mediated survival, and population dynamics.

Professor Michael Bonsall, a Royal Society Research Fellow and University Lecturer in Mathematical Biology at Oxford University, said: ‘This sort of behaviour - cannibalising your offspring - is widespread amongst different animal groups. We show that there is not a single benefit to eating your offspring, and it depends on several factors and explanations.’

Caring females such as the bank vole, the house finch, and the wolf spider often consume their young, and both parents of the burying beetle are known to consume some of their offspring. Filial cannibalism has also been well documented in fish species with paternal care during the egg stage.

It was previously thought that energetic need alone is the primary factor leading to filial cannibalism, in that a caring parent gains energy and nutrients from consuming its offspring, which are then reinvested into future reproductive events. However, the researchers found that a reduction in brood size reduces anticipated competition and thus affects survival of the remaining offspring.

The ability to abandon or consume offspring during the course of parental care can actually help the evolution of parent care. An analysis of the evolutionary dynamics of offspring abandonment, filial cannibalism, and parental care illustrates that these behaviours have the potential to coexist.

Source: Oxford University

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