



Fighting experience makes burying beetles better mothers

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BACKGROUND

Animals commonly fight over mates, territories, food, and other resources. During these fights, animals gain information about their size and condition relative to other individuals. For example, losers might perceive themselves as being in worse condition than their competitors. This might mean that their chances of breeding in the future are limited, so they may increase their investment in current reproduction.

Question:

Does winning or losing a contest influence a female's reproductive investment decisions?

STUDY SPECIES

- Burying beetles (*Nicrophorus vespilloides*) breed on carcasses of small vertebrates
- Larvae can self-feed, but parents also feed larvae by regurgitating predigested carrion directly into their mouths (as pictured below)



PT Smiseth

WHAT WE FOUND

- No effect of **contest outcome** on female pre-hatching or post-hatching investment, but strong effect of **contest experience**
- Both winners and losers spent more time feeding their offspring than controls did
- This led to **higher reproductive success for winners and losers** (more surviving offspring than females with no fighting experience)

WHAT WE DID

Control treatment
(medium-sized ♀ with no fighting experience)



Winner treatment
(medium-sized ♀ vs small ♀)

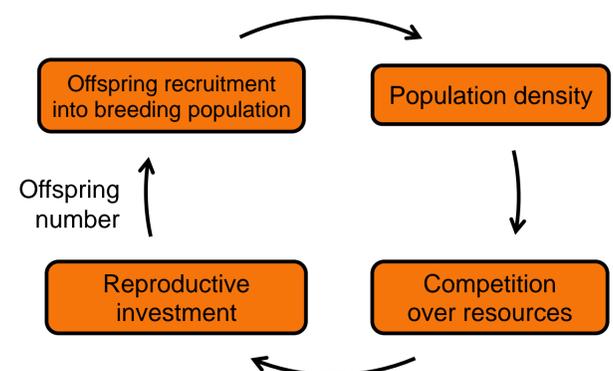


Loser treatment
(medium-sized ♀ vs large ♀)



WHAT IT MEANS

Our results provide a novel link between fighting experience and reproductive investment. In species where (i) parents adjust their reproductive strategies based on their contest experience and (ii) these adjustments affect offspring number/size, contests could influence and be influenced by population dynamics → **feedback loop between local-scale social interactions, individual-level behavioral changes, and population-level processes.**



For more details, check out the full paper:

Pilakouta N, Halford C, Racz R, Smiseth PT (2016) Effects of contest experience and contest outcome on female reproductive decisions and offspring fitness. *American Naturalist* (in press).

