

# Burnt out birds suggest hard work could be bad for your health

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A team of scientists at the University of Exeter studied white-browed sparrow weavers, a social species in which all group members share offspring care duties, but the dominant male and female work hardest. Credit: Dominic Cram

Unequal sharing of workloads in societies could leave the most industrious individuals at higher risk of poor health and prone to accelerated ageing, according to a new study of a cooperative bird in the

Kalahari Desert.

A team of scientists at the University of Exeter studied white-browed sparrow weavers, a social species in which all group members share offspring care duties, but the dominant male and female work hardest.

Dominants are the only birds that breed, with dominant males singing to attract a mate and dominant females producing all of the eggs and providing most of the care for nestlings.

Both dominants also invest most in fiercely defending the group's territory.

In order to assess how these unequal workloads impact the health of the birds, the researchers measured the level of antioxidant protection in 93 sparrow weavers before and then again after a long [breeding season](#).

Antioxidant defences help animals protect themselves against the damaging effects of free radicals, but if hard work overwhelms this protection it can result in oxidative stress – implicated in a range of diseases and ageing.

Lead author Dr Dominic Cram said: "When groups of animals live together, including humans, they often divide workloads, and some individuals work harder than others.

We wanted to investigate whether the hardest working members are the healthiest, and whether this allows them to work harder than everyone else. We also wanted to know whether work rates impact health, leaving the hardest workers in poor condition."



The study found that, while dominants and subordinates had comparable levels of antioxidant protection before the breeding season, once the intensive six-month breeding period had passed, the hardest working dominant females were suffering from weakened antioxidant protection. Credit: Dominic Cram

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Co-author Dr Andrew Young of the Centre for Ecology and Conservation at the University of Exeter added: "Our findings suggest that the unequal sharing of workloads in animal societies may leave the hardest-working individuals at risk of [oxidative stress](#), which could lead to [poor health](#) and accelerated ageing."

The findings, published today in the journal *Functional Ecology*, are among the first of their kind for social vertebrates and suggest that social dominance in such species may entail hidden physiological costs, with implications for the patterns of health and ageing in societies.

**More information:** 'Oxidative status and social dominance in a wild cooperative breeder' by Dominic L. Cram, Jonathan D. Blount & Andrew J. Young is published today in the journal *Functional Ecology*.

Provided by University of Exeter

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