

Having and raising offspring is costly phase of life for baboon moms

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Female baboons and their infants in the Amboseli ecosystem in Kenya are shown. In baboons, the costs of lactation can delay wound healing. Credit: Jeanne Altmann

Observations made over the past 29 years in Kenya as part of one of the world's longest-running studies of a wild primate show how having

offspring influences the health of female baboons. These observations highlight that females are mostly injured on days when they are likely to conceive. In addition, injuries heal the slowest when they are suckling their young. The study, published in Springer's journal *Behavioral Ecology and Sociobiology*, is led by Elizabeth Archie of the University of Notre Dame in the US and the National Museums of Kenya.

Reproduction can be dangerous and energetically costly, exposing individuals to physical harm, infectious disease and reduced immunity. To investigate how long-lived, slow-reproducing species such as primates adjust to this, Archie and her colleagues turned to data collected as part of the Amboseli Baboon Research Project near Kilimanjaro. Here, trained observers have made almost daily notes since 1971 on groups of yellow [baboons](#). Among others, 707 injuries to 160 female baboons between 1982 and 2011 were noted.

The analysis of the data makes it possible to predict the risk of injury to specific [females](#) by taking their ovarian cycle, dominance rank and age into account, as well as whether their social group is separating into two or more distinct groups. Ovulating females are, for instance, twice as likely to be wounded as those who are in the less fertile days of their cycle. Such injuries occur in the context of reproductive competition through interactions with both adult males and females.

The injuries of lactating baboons were about 21 percent less likely to heal in a given time period than those of non-lactating females. This may be because lactating females are in poorer physical condition or have less energy in general. This influences how well a wound can heal, tissue is repaired and infections are curbed.

The researchers do not find it at all surprising that low-ranking females experience higher [injury](#) risk than high-ranking females. Prior research has shown that these baboons are subject to more aggression and are less

likely to be supported in conflicts than high-ranking females.

Older females might incur more injuries because they take greater risks to make the best of their declining reproductive years, or because their health and resilience is generally failing. Old age has another drawback for female baboons: older ones tend to heal more slowly than younger females, because immunity and subsequent wound healing commonly decline with age.

"As yet it's unclear if these costs of reproduction influence female survival, but in many species injuries and slow healing have important functional consequences, including reduced mobility and greater risk of infection or predation," says Archie. "Our results contribute to a growing understanding of the costs of reproduction in long-lived species."

More information: Archie, E. A. et al (2014). Costs of reproduction in a long-lived female primate: injury risk and wound healing, *Behavioral Ecology and Sociobiology*. DOI: [10.1007/s00265-014-1729-4](https://doi.org/10.1007/s00265-014-1729-4) . link.springer.com/article/10.1007/s00265-014-1729-4

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