

'Popular girls' have less lice—in the monkey world

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Female Japanese macaques at the center of their social network had less lice thanks to the extra grooming they receive from their many friends. This was especially true during winter when macaques mate and during summer when they give birth. Credit: Julie Duboscq/Kyoto University

Parents know all too well the nightmare of ridding lice infestations. But for Japanese macaques at least, 'popular girls' need not fret so much. In new research published in *Scientific Reports*, primatologists have found

that females at the center of their social network had less lice thanks to the extra grooming they receive from their many friends.

Lice spread from person to person by direct contact. Hair combing is a preventative strategy humans use to rid louse eggs attached to the base of hair. Japanese macaques use a modified version of such 'egg-picking' while [grooming](#) each other, effectively fending off parasites.

"We thought that since grooming is one of the most common types of contact that occurs between macaques, this behavior should facilitate the transmission of [lice](#)," says lead author Julie Duboscq, who conducted the research at the University of Strasbourg and currently based at Kyoto University. "At the same time, grooming might also constrain the spread of lice because louse eggs are removed during grooming, which reduces future generations of lice."

Duboscq and colleagues observed the macaques' egg-picking behaviors over 142 days to estimate the amount of lice each individual carried. In parallel, they observed who was grooming whom and how often; with this information they built a model of the group's social network, which gave them insight into which individuals are more social, or central, in the group.

The team found that central females have less lice, and that the effects were most profound during the most physically demanding times for females, namely during winter when [macaques](#) mate and during summer when they give birth.

But that doesn't mean that the popular girls always enjoy benefits. "The link between sociality and parasitism is not always straightforward," says Andrew MacIntosh, a senior author of the paper and a researcher at Kyoto University's Primate Research Institute. "Increased centrality in social networks is often linked to increased parasite load and disease

risk."

In a previous study, MacIntosh found that central females have a higher risk of having more parasitic intestinal worms. "For this study, however, interactions between environmental seasonality and both parasite and host biology appeared to mediate the role of social processes in louse burdens."

More information: Julie Duboscq et al. Network centrality and seasonality interact to predict lice load in a social primate, *Scientific Reports* (2016). [DOI: 10.1038/srep22095](https://doi.org/10.1038/srep22095)

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