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Double-Edged Sword of Dominance: Top Chimps Tend to Suffer from More Parasites

A study of chimpanzees has revealed that dominant animals with higher testosterone levels tend to suffer from an increased burden of parasites. Researchers writing in BioMed Central's open access journal BioPsychoSocial Medicine observed the primates' behavior and studied their droppings to draw the link between dominance and infection status.

Michael Muehlenbein from Indiana University and David Watts from Yale University, USA, carried out the study in 22 male animals at Kibale National Park, Uganda. According to Muehlenbein, "Acquisition and maintenance of high dominance rank often involves frequent aggression, and testosterone has been considered the quintessential physiological moderator of such behavior. However, testosterone also causes suppression of the immune system."

The researchers found that fecal testosterone levels were directly associated with dominance rank, and the number of unique parasite species recovered. High ranking males had generally higher testosterone levels and increased parasite burden. Muehlenbein said, "To our knowledge, this provides the first analysis of the relationships among testosterone, infection and dominance status in primates, and one of the first in wild mammals."

There are two possible explanations for the study's findings. Dominant males may either suffer from more parasites because the raised testosterone in their systems reduces their ability to fight infection, or the behavioral aspects of dominance, including increased contact with other animals, may put them at higher risk.

Story Source: The above story is reprinted (with editorial adaptations by ScienceDaily staff) from materials provided by BioMed Central, via EurekAlert!, a service of AAAS.