

PARASITE BURDEN AS A TOOL TO ASSESS IMMUNOSENESCENCE IN WILD BROWN MOUSE LEMURS (*MICROCEBUS RUFUS*)

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Organisms are typically subjected to infection by a diverse array of pathogens throughout their life span, and the benefits of immunological response mechanisms are paramount. In humans, dysfunction in the immune system with an increase in age, known as immunosenescence, often compromises protection against infectious diseases in the elderly. Few studies have examined this notion of declined immunocompetence with age in mammals in their natural habitats. While the immune system is very complex, there are a few health indicators that allow us to examine the immune system with minimal invasiveness: one such example is through parasite analysis. The objective of this study was to assess the impact of aging on the immune health of wild brown mouse lemurs (*Microcebus rufus*). We systematically measured endoparasitic fecal nematode larvae intensities using a modified Baermann's apparatus, and ectoparasites using an integument exam, on two populations of mouse lemurs in Madagascar's Ranomafana National Park (RNP). The ages of wild individuals were previously determined to be within a range from 1 to 9 years, using mark-recapture techniques and dental molding procedures. 100 known-age brown mouse lemurs were examined for parasites during two breeding seasons (2008 and 2009), and our results suggest a positive correlation between ectoparasite loads and an increase in age, and no correlation between endoparasite intensities and age. While our results indicate that immunosenescence does in fact occur in natural primate populations, it also highlights the need to include different parasite groups in immunosenescence assessments.

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