

# Lice can be nice to us

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(PhysOrg.com) -- Parasite infestations might have a good side. Wild mice from a Nottinghamshire forest have given experts at The University of Nottingham clues as to the importance of some parasites, such as lice, for the conditioning of a “natural” immune system.

Jan Bradley, Professor of Parasitology, said: “Our understanding of mammalian immunology is largely based on rodents reared under highly unnatural pathogen and stress-free conditions. Analysing the immune response in wild populations can give crucial insights into how the [immune system](#) functions in its natural context.”

Many health problems in modern humans are caused by over-active immune responses. The immune system should be able to tell the difference between foreign invaders and its own body cells. But sometimes it can mistake self proteins for non self proteins triggering an attack on its own body and causing an autoimmune disease such as arthritis, asthma, diabetes or multiple sclerosis. Or the body can mistake a harmless substance as a threat causing an allergic response.

The authors say some parasites may exert a moderating effect on the function of a key component of the immune system, which could help reduce overall immune reactivity and the risk of developing immune dysfunctions.

Their research, published in the open access journal *BMC Biology*, links the louse *Polyplax serrata* to a strong dampening of certain immune responses in wild wood mice. This implies that other mammals, such as

modern humans, that develop in artificial environments may have less regulated, overactive immune systems precisely because they are not exposed to parasites throughout their lives.

The researchers speculate that the [louse](#) is able to exert some kind of immuno-suppressive effect, possibly directly by secreting some substance into the mice from its saliva, or indirectly by transmitting bacteria or other pathogens.

Professor Bradley said: “Much like laboratory mice, people in developed countries are currently exposed to a very different profile of infections to that encountered by their ancestors. It is possible that the immune dysfunctions we see today are the result of immune systems moulded by evolution for a set of challenges completely different to those encountered in modern times.”

Provided by University of Nottingham ([news](#) : [web](#))

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