

## Does the eradication of endoparasites promote allergic disease?

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Dr Carsten Flohr has recently returned from his field research at the Oxford University Clinical Research Unit in Vietnam, where he studied the links between intestinal parasites and allergic diseases, including eczema.

Allergic diseases are rare in developing nations, such as Vietnam, but are commoner in more affluent settings and in urbanised populations. Many cross-sectional studies from developing countries suggest that this urban-rural gradient for allergic disease can partly be explained by a higher prevalence of geohelminth infection in rural areas.

Dr Flohr examined the links between gut worms and allergic diseases in 1,600 rural Vietnamese children and found in cross-sectional analysis that those with the highest level of hookworm infestation were the least likely to have an allergic response to house dust mites. Treating these 1,600 hookworm-infected children with de-worming tablets in a randomised, double-blind, placebo-controlled trial over a 12-month period significantly increased their allergen skin reactivity. While there was no increase in clinical allergic disease, such as eczema, at the end of the trial period, the results suggest a direct immuno-modulatory effect of geohelminth infection on skin prick test responses. Geohelminth-induced IL-10 was inversely related to skin prick test positivity at baseline and also reduced after antihelminthic treatment, albeit non-significantly, suggesting that IL-10 might be involved in the downregulation of skin prick test responses, but other so far unknown immunological mechanisms must be at play as well.

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### Publications arising from this study:

Flohr C, et al Effect of anti-helminthic treatment on exercise-induced bronchospasm, allergen skin sensitisation, and immunological responses: A randomised, double blind, placebo-controlled trial in Vietnam. [submitted to *the Lancet*]

Flohr C, et al. Low efficacy of mebendazole against hookworm in Vietnam: two randomised controlled trials. *American Journal of Tropical Medicine & Hygiene* 2007;76 732-736

Flohr C, et al Poor sanitation and helminth infection protect against skin sensitization in Vietnamese children: A cross-sectional study. *Journal of Allergy and Clinical Immunology* 2006; 118: 1305-11.