

# Worm infections in developing countries: Veterinary drugs improve the health of school children

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School children are investigated for worm infection. Credit: Benjamin Speich / Swiss TPH

Hookworms and whipworms are detrimental to health. Children in many developing countries in particular are prone to regular infection via contaminated soil due to a lack of latrines and clean water. Whipworm eggs enter the body via the gastrointestinal tract and evolve over several development stages. To contain the health risks of worm infections, the WHO recommends annual de-worm treatment for children and at-risk groups (such as field hands and miners). However, the recommended standard treatment appears to have little effect against the widespread whipworm (*Trichuris trichiura*).

"We remembered that there was an effective deworming drug used in veterinary medicine," says head of the study Jennifer Keiser, from the Swiss Tropical and Public Health Institute. Following a preliminary study in the laboratory, her group tested the veterinary treatment 'Oxantel Pamoate' in combination with the standard treatment, Albendazole. The randomised double-blind trial with school [children](#) with [worm infections](#) took place on the East African island of Pemba (Tanzania). After one treatment with this combination therapy, 31% of the children were free of worm infections. The number of worm eggs in the children's stools decreased by 96% after one treatment.

## **Veterinary medicine for neglected worm infections**

'Oxantel Pamoate' was developed in the 1970s to combat whipworm. Today, it is widely used in veterinary deworming drugs in combination with other substances. Studies in the 1970s showed that 'Oxantel Pamoate' is also a safe and effective way of tackling whipworm infections in humans. Yet, the drug was soon forgotten about and was never widely used for humans.

"Health experts in the field of worm infections have been discussing its use for some years now," says Jennifer Keiser: "The problem was the availability of the active ingredient as a single substance." The

[veterinary medicine](#) manufacturers did not want to release the drug for human clinical trials and the [drug](#) is not commercially available.

## Successful collaboration with pharmacists at the University of Basel

The solution was found during a collaboration with pharmacists at the University of Basel. Jörg Huwyler's laboratory in the Centre for Pharmaceutical Sciences succeeded in producing a tablet whose taste and colour were attractive to children. Thanks to this expertise, it was possible to develop the substance entirely independently of the pharmaceutical industry. Drug doses and delivery are currently being improved in further clinical trials. On the strength of the study, the WHO could extend its recommendation to include this substance in future. This would improve the health of millions of children worldwide.

**More information:** Oxantel Pamoate-Albendazole for Trichuris trichiura Infection. B. Speich, SM. Ame, SM. Ali, R. Alles, J. Huwyler, J. Hattendorf, J. Utzinger, M. Albonico, and J. Keiser, Ph.D. *N Engl J Med* 770;7, p. 610ff.

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