



Bumping Iron No Cure for Hookworms

By Katherine Unger
ScienceNOW Daily News
 20 January 2006

How do you treat an infection that robs the body of iron? The simplest answer—with more iron—may not be the best, according to a new study. Hookworm-infected animals fed moderate amounts of iron became sicker and more anemic than those eating very little iron. The findings may have implications for how physicians treat such infections in humans.

An estimated 740 million people are infected with hookworms, mainly in tropical regions of the developing world. The worms usually enter the body through the skin (often burrowing through the bare feet of children playing in the dirt) and wriggle their way to the intestines. There they latch on and begin sucking blood and nutrients. Untreated infections can lead to stunted growth, learning difficulties, malnutrition, and severe anemia. Many victims already have anemia to begin with, however, due to low levels of iron in their diets or other infections such as malaria.

Iron eaters.

Hookworms gobble blood and nutrients, rendering hundreds of millions of people anemic.

Credit: Richard Bungiro

issue of *Infection and Immunity*.

To see whether being anemic increases the severity of hookworm infections, researchers at the Yale University School of Medicine infected hamsters with hookworm. During the infection, the animals were placed on diets containing either standard or low levels of iron. To the researchers' surprise, after 20 days, the hamsters on the standard diet had nearly 10 times more worms in their intestines than the low-iron hamsters. Hamsters on a diet with intermediate levels of iron did even worse, the team reports in the January

People with hookworm infections are often given iron supplements to deal with their anemia, but this might be a mistake, says study author and disease specialist Michael Cappello. He says the relationship of iron levels and hookworm-infection intensity resembles a bell curve: At very low and very high iron levels, the parasite doesn't do very well, but it rages at intermediate levels. Cappello suspects that a high iron level may poison hookworms, and that a low iron level prevents worms from developing into their adult blood-sucking form. Boosting infected people to moderate iron levels with supplements could put them in the ideal range for hungry hookworms, he says.

Parasitologist and pediatrician Peter Hotez of George Washington University in Washington, D.C., cautions against making too much of the results in the severely iron-restricted hamsters, noting that low blood iron is associated with devastating problems for children and pregnant women. But he notes the study is in line with findings in humans that suggest iron balance is crucial in warding off the worst effects of hookworm infection.