

Retail Meat ANALYZED

ARS scientists and colleagues have completed a study looking into sources of exposure to a microscopic parasite. The study provides the first risk assessment of the likelihood of exposure to *Toxoplasma gondii*—a common parasite worldwide—by ingestion of raw or undercooked meat.

After analyzing retail meat samples taken from nearly 700 stores across the country, the scientists found that the level of contamination from *T. gondii* is low but measurable in the cuts of whole pork evaluated.

The study, reported in the *Journal of Parasitology*, was supported by a grant from the National Research Initiative, a program within ARS's sister agency, the Cooperative State Research, Education, and Extension Service.

Pork, chicken, and beef—2,094 samples of each—were purchased from retail stores in 28 major U.S. geographic areas. Each sample weighed a minimum of 2.2 pounds, for a total of more than 14,000 pounds of meat tested. Sausage and other types of ground-meat products were not evaluated.

Dolores E. Hill and Jitender P. Dubey, who are experts in parasitology research at the ARS Henry A. Wallace Beltsville [Maryland] Agricultural Research Center, led the study. They collaborated with colleagues from the Atlanta-based Centers for Disease Control and Prevention (CDC).

The scientists found that the prevalence of live *T. gondii* parasites in pork in retail meat cases nationwide is about 0.4 percent—about 4 per 1,000 samples. That's about half the infection rate found in blood from market-age pigs tested as part of USDA's National Animal Health Monitoring System.

None of the beef and chicken meat samples had live *T. gondii* parasites, based on a controlled analysis.

"Improvements in how swine are housed and fed have drastically reduced the prevalence of *T. gondii* in pork," says Dubey. "Improved hygiene and a drive to keep cats out of the barn are paying dividends." A cat, he explains, can become a host to *T. gondii* parasites by eating rodents or birds. The cat then expels millions of infectious-stage oocysts in its feces in just a week or two.

According to CDC data, *T. gondii* infects about 23 percent of the U.S. population aged 12 or older—about 50 million people. Of these, about 15 percent show symptoms.

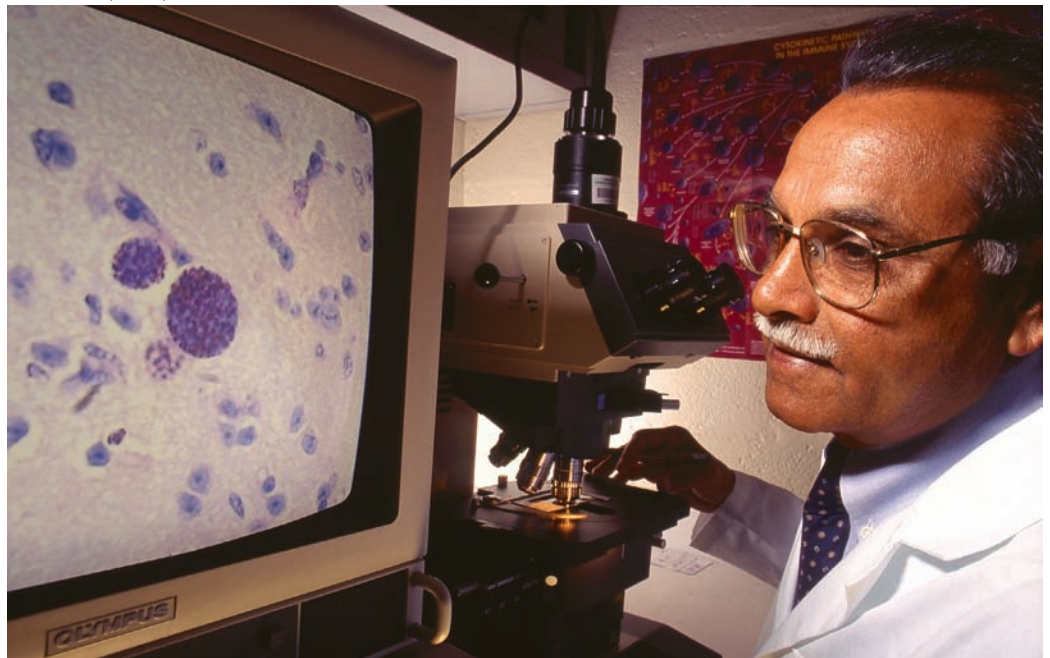
The parasite can seriously damage developing fetuses and persons with weakened immune systems, such as those infected with HIV, according to experts. Infants born to mothers who become infected for the first time just before or during pregnancy are at risk of developing severe toxoplasmosis.

The hardy oocysts—when deposited in soil, sand/litter boxes, or near farm-animal feed—create the risk of infection. Wash hands well after outdoor activities and after handling raw meat. Do not eat undercooked meat: All meat must be cooked thoroughly to 160°F to 170°F.—By **Rosalie Bliss**, ARS.

This research is part of Food Safety, an ARS National Program (#108) described on the World Wide Web at www.nps.ars.usda.gov.

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Microbiologist Jitender Dubey examines swine tissues for *Toxoplasma* parasites.