

Zika infection may give future immunity, monkey study suggests

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Aedes aegypti mosquito, which may carry the Zika virus or dengue fever. Photo courtesy CDC.

(HealthDay)—Infection with the Zika virus may protect against future infection, but pregnancy seems to extend how long the mosquito-borne virus stays in the body, a new study in monkeys suggests.

"We have good news for most people: If you are not pregnant and not at risk of becoming pregnant, you probably don't need to be worried about Zika," said study leader David O'Connor. He is a professor of pathology at the University of Wisconsin-Madison.

"But my concern for Zika [virus](#) in pregnancy is much higher now than it was six months ago," O'Connor added.

In the study, researchers infected [rhesus macaque monkeys](#) with the Zika virus strain that emerged in South America in 2015. The investigators found that those monkeys resisted infection with the same strain 10 weeks later.

"This is [good news](#) for vaccine design. It suggests the sort of immunity that occurs naturally is sufficient. If you can mimic that in a vaccine, you'll likely have a very successful vaccine," O'Connor said in a university news release.

However, the researchers also found that the virus remained in the blood of pregnant female monkeys for 30 to 70 days after infection, compared with 10 days in non-pregnant females.

That extended period has implications for the severe impacts of Zika infection during pregnancy, according to the scientists. The virus has been linked to a birth defect called microcephaly, in which babies have abnormally small heads and underdeveloped brains.

"What we've shown in the monkey model matches a lot of what people have observed in epidemiological studies of humans," said study first

author Emma Mohr, a pediatric infectious disease fellow at UW-Madison.

"It's important for us to show in a lab setting what people have expected in humans—that you clear viremia (infection by the Zika virus) within a week, and you are protected from future infections by the same virus," she explained.

However, experts note that research on animals often fails to produce similar results in humans.

A possible reason why the Zika virus persists longer in pregnancy is that the immune systems of expectant mothers are too weak to clear the virus as quickly, the researchers suggested.

"The other, more provocative hypothesis is that it's indicative of infection of the fetus, and what we're observing in the maternal bloodstream is the shedding of virus by the fetus back into the mother's bloodstream," O'Connor said.

"If that happens to be the case, it would suggest that there is a prolonged infection of the fetus that lasts much longer than the infection of the mother," he added.

But it could also offer an opportunity to monitor the risks to a fetus without using invasive and risky tests, said O'Connor.

He explained that "measuring the viral load on a Zika-infected pregnant woman on a weekly or biweekly basis could provide an indication for the likely degree of damage to the fetus. If a pregnant woman comes into a clinic with Zika virus, but a week later shows no more evidence of infection, that could be a good indication that the fetus is unlikely to be affected."

Assessing Zika virus levels in the blood of pregnant women to determine fetal [infection](#) might also help guide researchers trying to develop treatments to protect babies from Zika-related brain damage.

The study was published June 28 in the journal *Nature Communications*.

As of June 16, the U.S. Centers for Disease Control and Prevention reported there are 265 cases of [pregnant women](#) on the U.S. mainland who have been infected with Zika.

In Latin America, thousands of babies have already been born with microcephaly. And researchers reported last Wednesday that fears of Zika-related birth defects may be driving up abortion rates in Latin American countries affected by the virus.

Zika is typically transmitted via the bite of the *Aedes aegypti* mosquito. But, transmission of the virus through sex is more common than previously thought, World Health Organization officials have said.

Women of child-bearing age who live in an active Zika region should protect themselves from mosquitoes by wearing long-sleeved shirts and long pants, using mosquito repellent when outside, and staying indoors as much as possible, according to the CDC.

U.S. health officials have said they expect to see Zika infections in Gulf Coast states such as Florida, Louisiana and Texas as mosquito season ramps up.

More information: Visit the [U.S. Centers for Disease Control and Prevention](#) for more on the Zika virus.

This Q&A will tell you [what you need to know about Zika](#).

To see the CDC list of sites where Zika virus is active and may pose a threat to pregnant women, click [here](#).

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