

Research shows BPA can damage DNA in monkeys

Chemical used in plastics is found in most humans

Liz Szabo
@LizSzabo
USA TODAY

A new study in monkeys provides the strongest evidence yet that an estrogen-like chemical called BPA could alter chromosomes, increasing the risk of birth defects and miscarriages, scientists say.

Although researchers have performed hundreds of studies of BPA in mice, there are far fewer studies in humans and their closest relatives, non-human primates.

In a paper published in *Proceedings of the National Academy of Sciences*, Washington State University geneticist Patricia Hunt found chromosomal damage in rhesus monkeys, which share 95% of their DNA with humans. Significantly, the damage occurred at levels of BPA that are similar to the levels to which humans are routinely exposed, Hunt says.

She notes that the new findings confirm earlier results in lab mice.

"This is hitting uncomfortably close to home now," Hunt says. "It's so close to humans that we can't really deny this is a problem."

Researchers have been concerned for 15 years about the risks of BPA, used in plastic bottles, heat-activated cash register receipts, the linings of aluminum cans and countless consumer products. Studies by the Centers for Disease Control and Prevention find that more than 92% of Americans have BPA in their bodies.

Hunt studied the effects of BPA on pregnant monkeys, focusing not just on the mothers but on the ovaries of their unborn daughters.

Females are born with all of the eggs they will ever have, and these eggs develop while they are still in their mothers' wombs.

Hunt found that BPA caused damage at two times in pregnancy: First,



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in early pregnancy, when the fetus's eggs were developing, causing the eggs to divide improperly. That kind of damage can cause birth defects, and it has in Hunt's earlier mouse experiments. This time, Hunt didn't study these monkeys long enough to observe any birth defects.

Second, BPA caused problems later in pregnancy, when eggs were improperly "packaged" in the follicles in which they develop.

That could limit the number of viable eggs, impairing fertility, Hunt says. BPA can affect multiple generations simultaneously, says Andrea Gore, a professor of pharmacology and toxicology at the University of Texas in Austin. That's because BPA can affect a pregnant mother; her unborn fetus; and, if that fetus is female, the fetus's future offspring, who will develop from her eggs.

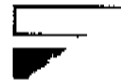
"It's a three-for-one hit," Hunt says.

Steven Hentges, a scientist with the American Chemistry Council, an industry group, says the study's small size makes it "of unclear relevance to humans." Government studies suggest that "because of the way BPA is processed in the body, it is very unlikely that BPA could cause health effects at any realistic exposure level," Hentges says.

Chromosomal damage was found in rhesus monkeys, which share 95% of human DNA.

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