

Birth control pills affect memory, study finds

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Women who use contraceptives like birth control pills experience memory changes, according to new UC Irvine research. Their ability to remember the gist of an emotional event improves, while women not using the contraceptives better retain details.

"What's most exciting about this study is that it shows the use of hormonal contraception alters [memory](#)," UCI graduate researcher Shawn Nielsen said. "There are only a handful of studies examining the [cognitive effects](#) of the pill, and more than 100 million [women](#) use it worldwide."

She stressed that the medications did not damage memory. "It's a change in the type of information they remember, not a deficit."

The change makes sense, said Nielsen, who works with neurobiologist Larry Cahill, because contraceptives suppress [sex hormones](#) such as estrogen and progesterone to prevent pregnancy. Those hormones were previously linked to women's strong "left brain" memory by Cahill's research group.

"This new finding may be surprising to some, but it's a natural outgrowth of the research we've been doing on sex differences for 10 years," Cahill said. A neurobiologist not involved in the latest work agreed it was a logical and intriguing next step in the examination of memory differences between the sexes. Like any research, she added, it would be important to validate it further.

"Larry Cahill is already well known for his phenomenal research linking sex to memory," said Pauline Maki, professor of psychiatry and psychology at the University of Illinois at Chicago, who specializes in memory and brain functioning. "The fact that women on [oral contraceptives](#) remembered different elements of a story tells us that estrogen has an influence on how women remember [emotional events](#)."

In the study, groups of women either on the contraceptive or experiencing natural hormonal cycles were shown photographs of a mother, her son, and a car accident. The audio narrative differed; some in each group were told the car had hit a curb, while others were told the car had hit the boy and critically injured him.

One week later, all were given surprise tests about what they recalled. Women using hormonal contraceptives for as little as one month remembered more clearly the main steps in the traumatic event – that there had been an accident, that the boy had been rushed to the hospital, that doctors worked to save his life and successfully reattached both his feet, for instance.

Women not using them remembered more details, such as a fire hydrant next to the car.

Nielsen and fellow researcher Nicole Ertman agreed the findings could help lead to fuller answers about why women experience post traumatic stress syndrome more frequently than men, and how men remember differently than women. Men typically rely more on right-hemisphere brain activity to encode memory. They retain the gist of things better than details. Women on the pill, who have lower levels of hormones associated with female reproduction, may remember emotional events similarly to men. Nielsen plans to do her doctoral thesis on whether hormones affect the retention of details.

The work, funded by the National Institute of Mental Health, appears in the September issue of the journal *Neurobiology of Learning and Memory*. Additional authors include Cahill and UCI undergraduate research assistant Yasmeeen Lakhani.

Provided by University of California - Irvine

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