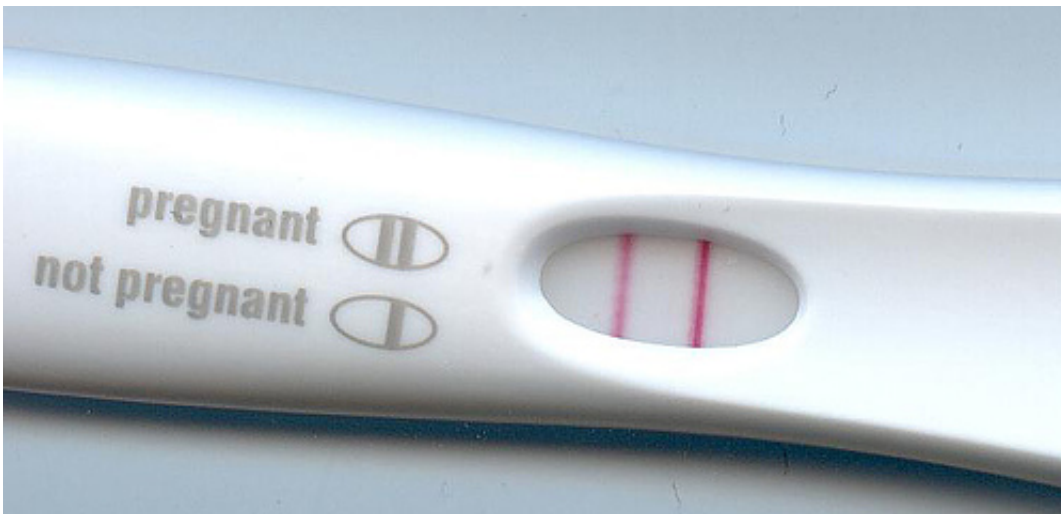


Women who have their last baby after 35 are mentally sharper in old age, study finds

November 17 2016, by Zen Vuong



Pregnancy test. Credit: public domain

A new study has found that women have better brainpower after menopause if they had their last baby after age 35, used hormonal contraceptives for more than 10 years or began their menstrual cycle before turning 13.

This is the first study to investigate the association between age at last [pregnancy](#), which can be a marker of a later surge of pregnancy-related hormones, and cognitive function in later life, said Roksana Karim, lead author of the study and assistant professor of clinical preventive medicine at the Keck School of Medicine of USC.

"Based on the findings, we would certainly not recommend that women wait until they're 35 to close their family, but the study provides strong evidence that there is a positive association between later age at last pregnancy and late-life cognition."

Postmenopausal women who had their last pregnancy after 35 had better [verbal memory](#). Those who had their first pregnancy when they were 24 or older had significantly better [executive function](#), which includes attention control, working memory, reasoning and problem solving.

The main hormones at play are estrogen and progesterone. In animal studies, estrogen has a beneficial impact on brain chemistry, function and structure; progesterone is linked with growth and development of brain tissue, Karim said.

The study, published this month in the *Journal of the American Geriatrics Society*, includes 830 women who, on average, were 60 years old. The data was adjusted for age, race and ethnicity, income, and education.

Participants were given a series of tests that included assessments of verbal memory (remembering a list of words or retelling a story after some distraction), psychomotor speed, attention and concentration, planning, visual perception, and memory.

Previous research has shown that many women experience brainpower and memory declines in their postmenopausal years. An outpouring of estrogen and progesterone, especially in later life, appears to be beneficial, Karim said.

Pregnancy, the pill and more hormones

The study found that other reproductive events were also important to

later life cognition. More time between first and last period—longer reproductive life—proved valuable for executive function.

"Starting your period early means you have higher levels of the female sex hormone being produced by the ovaries," Karim said. "Girls are receiving the optimal levels early, so it's possible that their brain structures are better developed compared to those who are exposed to estrogen levels associated with menstrual cycles at a later age."

Use of the pill or other [hormonal contraceptives](#) for at least 10 years was beneficial for verbal memory and critical thinking ability.

"Oral contraceptives maintain and sustain a stable level of sex hormones in our blood stream," Karim said. "Stable is good."

Women who didn't carry their pregnancy to term and those who gave birth to two children had better overall cognitive ability, verbal memory and executive function when compared to women who had only one full-term pregnancy.

"The finding that even incomplete pregnancies are beneficial was novel and surprising," said Wendy Mack, the study's senior author and professor of preventive medicine at the Keck School of Medicine. "In general, our findings are intriguing and are supported by other clinical studies and animal studies."

In humans, however, previous studies have shown that "pregnancy brain" exists, meaning researchers found that pregnant women have poorer verbal memory, word fluency and word-list learning when compared to non-pregnant women.

"The issue is the human studies haven't followed women for the long term," Mack said. "They just looked at women during pregnancy. We

are not sure if we can expect to detect a positive estrogen effect at that point, as the many bodily changes and psycho-social stressors during pregnancy also can impact [women](#)'s cognitive and emotional functions."

More information: Roksana Karim et al, Effect of Reproductive History and Exogenous Hormone Use on Cognitive Function in Mid- and Late Life, *Journal of the American Geriatrics Society* (2016). [DOI: 10.1111/jgs.14658](#)

Provided by University of Southern California

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