

SSRI antidepressants promote bone loss during lactation

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Antidepressant use with selective serotonin reuptake inhibitors (SSRIs) during pregnancy and breast-feeding causes decreased bone density in mothers that may put them at higher risk of broken bones later in life, a new study suggests. Researchers will present the results of their animal study Friday at the Endocrine Society's 98th annual meeting in Boston.

"SSRIs are the most widely prescribed class of antidepressants, particularly during pregnancy and breast-feeding," said Laura Hernandez, PhD, the study's principal investigator and an assistant professor at the University of Wisconsin-Madison. "Therefore, it is of paramount importance that we explore the possibility that SSRIs may have detrimental effects on long-term maternal bone health."

Past studies show that SSRI use can cause decreased [bone mineral density](#) and increase the risk of fractures in both adolescents and adults. In addition, women who do not take SSRIs normally lose 6 to 10 percent of their [bone mass](#) while nursing, probably because calcium is diverted from the women's bones to the breast milk, Hernandez said. Although most women will recover lost bone within a year after they stop breast-feeding, recent research shows that women who breast-feed for longer periods have an increased risk of low [bone density](#) after menopause.

Hernandez and her colleagues wanted to know whether SSRIs have an additive effect on [bone loss](#) during lactation. They gave an SSRI, fluoxetine (known by the brand name Prozac), to six mice during pregnancy and lactation in addition to their regular diet and compared

them with six similar female mice that received saline rather than the drug.

The researchers fed two other groups of six mice each a diet supplemented with a high dose of [folic acid](#) before breeding and then gave them fluoxetine or saline during pregnancy and lactation. The folic acid dose was equivalent to that recommended for pregnant women at high risk of having an infant with spina bifida, according to Hernandez. Recent scientific research suggests folic acid may have bone protective effects in addition to helping prevent severe birth defects.

On the 10th day of lactation, the researchers evaluated bone mineral density in the femur, or thighbone, of the mice and tested gene expression in the animals' mammary glands. Hernandez said both groups that received fluoxetine had increased serotonin reuptake—evidence of the drug's action—by the mammary gland, which appeared to stimulate processes contributing to bone resorption, or [bone breakdown](#). The fluoxetine recipients reportedly had lower expression of the bone-building protein osteocalcin at the femur, compared with the saline groups. Also, the fluoxetine groups demonstrated increased expression in the femur of macrophage colony-stimulating factor, which is responsible for bone breakdown.

High-dose folic acid tended to reverse the effects of the SSRI on bone, the investigators found.

Women are instructed to take folic acid during pregnancy and breast-feeding, but the recommended dose is lower per body weight than what the mice received, according to Hernandez. She said, "Women who are breast-feeding may need more folic acid to protect against bone loss."

The long-term effects of SSRIs on bone during breast-feeding are unknown. Many women who have been taking these antidepressants for

years have not yet reached menopause, when [bone](#) loss tends to accelerate. Hernandez said, "This could be a big problem for a large population."

Provided by The Endocrine Society

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