Bone Gains in New Mothers

Assistant professor of pediatrics Judy Hopkinson examines a bone density scan of a breast-feeding mother.

Osteoporosis causes bones to become fragile. Bones in the hip, spine, and wrist are especially susceptible and can break unexpectedly if the disease is not prevented or treated. Fractures of the hip and spine frequently require hospitalization and surgery and can result in permanent disability.

In the United States alone, 28 million people—80 percent of them women—suffer from this debilitating disease. Some studies have suggested that the loss of bone associated with breast-feeding may increase the risk of osteoporosis later in life.

Now, researchers at the ARS Children's Nutrition Research Center in Houston, Texas, led by Judy M. Hopkinson, have examined the changes that occur in bone mass and density after pregnancy. This is the first such study to evaluate the long-term process of bone accretion after pregnancy and lactation.

The researchers also compared the differences in the changes that occur in breast-feeding and formula-feeding women. "Because of the increased risk of osteoporosis, the decline in bone density associated with lactation has received considerable attention," says Hopkinson.

"Some studies have found decreases of 4 to 6 percent in lumbar spine bone mineral density (BMD) during the first 6 months of lactation." Hopkinson says these losses are thought to be caused by the low estrogen levels in breast-feeding women. Lactation delays the onset of menses and the cyclic release of estrogen for several months. In addition, about 210 milligrams of a nursing mother's calcium a day are lost in breast milk.

Other studies suggest that while bone loss does occur, bone density normally returns to baseline levels and that women who do not breast-feed do not experience net changes in their bone mass or density.

So the researchers were surprised to find that 2 years after pregnancy, both women who did and did not breast-feed not only regained their baseline levels of BMD but actually achieved net gains.

While those who breast-fed lost some bone mass and density during early breast-feeding, short-term breast-feeders (less than 9 months) ended up with more bone than they had immediately after delivery. Researchers also found that women who breast-fed for more than 9 months took longer to recover their lost bone mineral.

In the women who did not breast-feed, more bone was deposited earlier in the cranial region, which includes the jaw, teeth, and skull.

"These results indicate that lactation delays bone mineral accretion and temporarily alters its regional distribution in postpartum women," says Hopkinson.—By **Jesús García,** ARS.

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