

Maternal & Infant Nutrition Briefs



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Do Calcium Supplements Prevent Preeclampsia?
Mother's Employment and Breast-Feeding Trends

A research-based newsletter prepared by the University of California for professionals interested in maternal and infant nutrition



Do Calcium Supplements Prevent Preeclampsia?

Preeclampsia, defined as hypertension and proteinuria occurring after 20 weeks of gestation, affects about 5% of all pregnant women. World-wide, preeclampsia is a leading cause of maternal death and increases risk of infant mortality. In a systematic, combined analysis of 33 small clinical trials (i.e., a meta-analysis, $n=2,414$), calcium supplements were linked to small reductions in systolic but not diastolic blood pressure (1). Although the effects were minimal, the authors suggested greater benefits of calcium might be found among high-risk women with very low calcium intakes. However, the conclusions from a meta-analysis of many smaller trials are often not the same as those from a large, well-conducted clinical trial. The purpose of the Calcium for Preeclampsia Prevention trial was to evaluate the effect of calcium supplements in preventing preeclampsia in a large well-controlled clinical trial. (2).

Healthy, nulliparous women, 11- 21 weeks pregnant, were enrolled in the study if: 1) their blood pressure was 134/84 mm Hg or less; 2) urine protein tests were negative; and 3) they passed a screen for compliance in taking medications. Of 4,589 subjects, 2,295 were randomly assigned the calcium group, and 2,294, to the control group. The calcium group took 2 gm calcium per day, while the controls received placebos. At regularly scheduled visits, the staff measured blood pressure and screened for proteinuria and urinary tract infections. Neither the subjects nor staff were aware of the group assignments. Compliance and dropout rates were similar for both groups.

Calcium supplements of 2 gm per day had no significant effect on reducing the rate of preeclampsia (6.9% in calcium group, 7.3% in controls), proteinuria alone, or hypertension alone. Furthermore, the effects of calcium supplements on reducing preeclampsia risk did not differ according to baseline dietary calcium intakes, maternal age, ethnicity, or level of compliance with the protocol. There were also no differences between the calcium group and controls in the occurrence of pregnancy complications or adverse birth outcomes (i.e., small-

for gestational age, preterm delivery, neonatal hypocalcemia).

In contrast to the meta-analysis mentioned above, this large, well-controlled, clinical trial found no evidence that calcium supplements during pregnancy prevent preeclampsia, pregnancy-associated hypertension or proteinuria in healthy, nulliparous women. Even among teenagers or women with very low calcium intakes, calcium supplements did not prevent these complications.

Source:

1) Bucher, H. C., R. J. Cook, G. H. Guyatt, J. D. Lang, D. C. Cook, R. Hatala, and D. L. Hunt (1996) Effects of dietary calcium supplementation on blood pressure: a meta-analysis of randomized controlled trials. *JAMA* 275: 1016-1022.

2) Levine, R. J., J. C. Hauth, L.B. Curet, B. M. Sibai, P. M. Catalano, C. D. Morris, R. DerSimonian, J. R. Esterlitz, E. G. Raymond, D. E. Bild, J. D. Clemens, and J. A. (1997) Cutler. Trial of calcium to prevent preeclampsia. *New England Journal of Medicine* 337(2): 69-76.

Mother's Employment and Breast-Feeding Trends

Maternal employment is often blamed for low rates of breast-feeding in the U.S. In 1988, 50% of new mothers in the U.S. were employed during their baby's first year of life, with 90% of these women back at work four months after delivery. The 1988 Ross Laboratories Survey found that mother's work had no effect on initiation of breast-feeding but did shorten duration considerably. A major drawback of the Ross Survey is the low return rate (about 50%) of the mailed questionnaires, which could result in a biased sample. The purpose of this study was to examine the effects of maternal employment and other factors on breast-feeding initiation and duration in the U.S, using data from the 1988 National Maternal and Infant Health Survey (1).

The mothers were asked if they had ever breast-fed and how old the baby was when breast-feeding stopped in days, weeks, or months. About 74% of the mothers returned the questionnaire, yielding a sample of 9,087 cases for the analysis. Using logistic regression, the researchers determined which factors were most strongly related to the decision to breast-feed, when all variables were considered simultaneously. In examining the factors related to initiation and duration of breast-feeding, the researchers ran separate analyses for different groups, because some variables, like participation in the WomçAminbsøÅñÇEQ"TEXTdosaÅ

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