

## **Breast Feeding and Diabetes**

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The causative relationship between breast feeding and diabetes mellitus received the attention of researchers for many years.

Some studies discussed the incidence of type 2 diabetes in lactating mothers. Other studies explored the effects of breast feeding on the incidence of diabetes in children and adolescents.

The most significant study was reported in the Journal of the American Medical Association in November 2005. It was conducted on two large phases, both included tens of thousands of registered nurses in the United States.

The first phase, the Nurses' Health Study (NHS), was initiated in 1976, and enrolled 121,700 women from 11 states.

The second study, the Nurses' Health Study II (NHS II) began in 1989, and enrolled 116,671 women from 14 states.

The final analysis of data was undertaken in 2003.

Both studies compared women who never breastfed their babies, with women who breastfed for variable periods, extending during their like time, from 3-23 months.

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In both of these large prospective studies, the duration of lactation was found to be inversely associated with the risk of type 2 diabetes in young and middle aged mothers, independent of any other diabetes risk factors, such as body mass index, diet, and exercise.

This association appeared to wane with time since last childbirth.

In view of the American Academy of Pediatrics' recommendation for breastfeeding for at least one year, the researchers in this large study concluded that higher parity was associated with longer lifetime duration of breastfeeding, and that the longer the duration of breastfeeding the lower risk of developing type 2 diabetes in mothers.

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The length and intensity of exclusive breastfeeding with each pregnancy has significant effect on diabetes risk. Longer durations of breastfeeding per pregnancy were associated with a greater benefit, with one year's lactation for one child resulting in a 44% reduction in age-adjusted risk, compared with one year's lactation between 2 children, resulting in a 24% reduction in risk.

It appears that the beneficial effects begin to accrue after 6 months of lactation.

The explanation of this long-term association between lactation and decreased risk of subsequent development of type 2 diabetes received the attention of several researchers. In some human studies, it was found that lactation was associated with improved glucose tolerance, fasting glucose, and more efficient pancreatic B-cell function.

Insulin levels and insulin-glucose ratios were significantly lower, and carbohydrate use was higher in lactating women. In animal studies, rat models demonstrated reduced glucose levels by 20%, and serum insulin levels were reduced by 35% during lactation.

This short review about breastfeeding and diabetes risk would not be complete without alluding to several studies on infants that were breastfed for variable periods of time. These studies provided evidence that breastfeeding may be protective against childhood obesity, and subsequently type 2 diabetes. Some earlier studies showed decreased incidence of type 1 diabetes in breastfed children. This area, however, needs further controlled studies.

### **Suggested Readings:**

1. Stuebe AM, Rich-Edwards JW, Willett WC, et al. Duration of Lactation and Incidence of Type 2 Diabetes. *JAMA*. 2005; 294: 2601- 2610.
2. Clifford TJ. Breast feeding and obesity. *BMJ*. 2003; 327: 879- 880.
3. Gerstein HC. Cow's milk exposure and type 1 diabetes Mellitus. *Diabetes Care*. 1994; 17: 13- 19.