Increased risk of cardiovascular disease

This UK study looked at the cholesterol levels of 1500 13 to 16 year olds and determined that breastfeeding may contribute to long term protection from cardiovascular disease by reducing total cholesterol and low-density lipid cholesterol. The research suggests that early exposure to breastmilk may program fat metabolism in later life, resulting in lower blood cholesterol levels and therefore a lower risk of cardiovascular disease.


To confirm links between infant nutrition and health risks in later life, British researchers measured blood pressure at 13 to 16 years of age of 216 children who had been born prematurely. For those who had received preterm infant formula or routine infant formula, blood pressure was higher than for those who had received breastmilk during infancy. The authors concluded that for children born prematurely, breastfeeding lowers blood pressure in later life and that this conclusion can be extended to term infants as well.


Increased risk of obesity

To determine the impact of infant feeding on childhood obesity, this large Scottish study looked at body mass index of 32,200 children aged 39 to 42 months. After elimination of confounding factors, socioeconomic status, birthweight and sex, the prevalence of obesity was significantly higher in the formula fed children; leading to the conclusion that formula feeding is associated with an increase in childhood obesity.


German researchers collected height and weight data of 9375 school children to determine the impact of early childhood feeding on the development of obesity. The prevalence of obesity was found to be 4.5 per cent - nearly 40 per cent higher - in those who had never been breastfed compared to 2.8 per cent for those who had been exclusively breastfed.

Von Kries R. Breastfeeding and obesity; cross sectional study. BMJ 319: 147-150, 1999

Increased risk of gastrointestinal infections

A comparison between infants who received primarily breastmilk during the first 12 months of life to infants who were exclusively formula-fed or who were breastfed for three months or less found that diarrheal disease was twice as high for the formula-fed infants than for those who were breastfed.


Breastfeeding promotion in Belarus significantly reduced the incidence of gastrointestinal infections by 40 per cent.


Increased risk of mortality

Compared with exclusive breastfeeding, children who were partially breastfed had a 4.2 times increased risk of death due to diarrheal disease. Not breastfeeding was associated with a 14.2 times increased risk for death due to diarrhea disease in Brazilian children.


Infants in Bangladesh who were partially breastfed or not breastfed had a risk of acute respiratory infection of death 2.4 times greater than exclusively breastfed infants. If children were predominantly breastfed the risk of death due to acute respiratory infection was similar to that of exclusively breastfed children.


The authors of this review discuss the impact of breastfeeding on child spacing and estimate that exclusive breastfeeding can decrease mortality up to 20 per cent when infants are spaced at least two years apart.

Thapa S, Short RV, Potts M. Breastfeeding, birth spacing and their effect on child survival. Nature 335: 679-682, 1988

Increased risk of otitis media and ear infections

The number of episodes of acute otitis media increased significantly with decreased duration of and exclusivity of breastfeeding. US infants who were exclusively breastfed for four months or more had a 50 per cent reduction of episodes compared to infants who were not breastfed. A 40 per cent reduction of episodes was reported for breastfeeding infants who were supplemented before four months of age.

Duncan B, EJ, By J, Holberg CJ, Wright AL, Martinez F, Taussig LM. Exclusive breastfeeding for at least 4 months protects against otitis media. Pediatrics 91: 867-872, 1993

Between six and 12 months of age the incidence of first episodes of otitis media increased from 25 per cent to 51 per cent in exclusively breastfed infants. In infants that were exclusively formula fed the incidence rose from 54 per cent to 76 per cent during the second half of the first year. The authors concluded that breastfeeding even for a short period (three months) would significantly reduce the episodes of otitis media during infancy.


Increased risk of side effects of environmental contaminants

A Dutch study showed that at six years of age, cognitive development is affected by prenatal exposure to PCBs and dioxins. An adverse effect of prenatal exposure on neurological outcome was also demonstrated in the formula fed group but not in the breastfed group. Despite higher PCB exposures from breastmilk, the study found that at 18 months, 42 months, and six years of age there was a beneficial effect of breastfeeding on the quality of movements, in terms of fluency, and in cognitive development tests.

The data gives evidence that prenatal exposure to PCBs has subtle negative effects on neurological and cognitive development of children up to school age. The study also gives evidence that breastfeeding counteracts the adverse developmental effects of PCBs and dioxins.

Increased risk of asthma
A study of 2184 children born in the Hospital for Sick Children in Toronto determined that the risk of asthma and wheezing was approximately 50 per cent higher when infants were formula fed compared to infants who were breastfed for nine months or longer. Dell S, To T. Breastfeeding and chronic diseases in children. Arch Pediatr Adolesc Med 155: 1261-1265, 2001

Researchers in West Australia studied 2602 children to determine the development of asthma and wheezing at six years of age. Not breastfeeding increased the risk of asthma and wheezing by 40 per cent compared to infants who were exclusively breastfed for four months. The authors recommend exclusive breastfeeding for at least four months to reduce the risk of asthma.


Increased risk of allergy
Children in Finland who had been breastfed the longest had the lowest incidence of atopy, eczema, food allergy and respiratory allergy. At 17 years of age, the incidence of respiratory allergy for those who had little breastfeeding was 65 per cent and for those who were breastfed the longest it was 42 per cent. Saarinen UM, Kajosaari M. Breastfeeding and the development of asthma in children: a cohort study. Lancet 346: 1065-1069, 1995

A longitudinal prospective study of 1246 healthy infants in Arizona, USA, aimed to determine the relationship between breastfeeding and recurrent wheezing. The results showed that non-atopic children at the age of six years who had not been breastfed were three times more likely to have recurrent wheezing. Wright AL, Holberg CJ, Tauxe VM, Martinez FD. Relationship of infant feeding at age 6 years. Arch Pediatr Adolesc Med 149: 758-763, 1995

Reduced cognitive development
A total of 3880 Australian children were followed from birth to determine breastfeeding patterns and later cognitive development. Those breastfed for six months or more had an 8.2 point higher for females and a 5.8 point higher for males in vocabulary tests over those who had never been breastfed. Quinn PJ, O’Callaghan M, Williams GM, Najman JM, Anderson MJ, Ho W. The effect of breastfeeding on child development: a cohort study. J Paediatr Child Health 37: 465-469, 2001

To determine the impact of exclusive breastfeeding on cognitive development for infants born small for gestational age, this US based study evaluated 2243 infants, using the Bayley Scale of Infant Development at 13 months and the Wechsler Preschool and Primary Scales of Intelligence at five years. The researchers concluded that exclusively breastfed (without supplements) small for gestational age infants had a significant advantage in cognitive development without compromising growth.


The benefits of breastfeeding have long term potential on a person’s life through its influence on childhood cognitive and educational development, concludes this UK study. Regression analysis was used to determine that breastfeeding was significantly and positively associated with educational levels obtained by age 26 as well as cognitive abilities at age 53 years. Richards M, Hady K, Waldron ME. Long-term effects of breastfeeding in a national cohort: educational attainment and midlife cognitive function. Public Health Nutr 5: 631-635, 2002

Increased risk of acute respiratory disease
Brazilian children not breastfed were 16.7 times more likely to be diagnosed with pneumonia than children who had received breastmilk only as infants. Cesar JA, Victoria C, Barros FC, et al. Infant feeding and respiratory infections in preschool children in Brazil: Nested case-controlled study. BMJ 318: 1316-1320, 1999

To determine the modifiable risk factors for acute lower respiratory infection in young children, this Indian hospital - based study compared 201 cases to 311 controls. Lack of breastfeeding was one of the key modifiable risk factors for lower respiratory infection in children under five years of age.


Increased risk for infection from contaminated formula
This case report from a recent US outbreak of Enterobacter sakazakii in a neonatal intensive care unit documents the death of a 20 day old infant who developed fever, tachycardia, decreased vascular perfusion and seizures at 11 days. The infant died at day 20. E. sakazakii cultures were identified from the spinal fluid and traced to contaminated powdered infant formula used in the NICU.


A Belgian based outbreak of necrotizing enterocolitis (NEC) is traced back to infant formula contaminated with Enterobacter sakazakii. A total of 12 infants developed NEC during the outbreak and two infants (twin brothers) died.


Increased risk of childhood cancers
UK Childhood Cancer, a prospective study analyzed 3500 childhood cancer cases and the relationship to breastfeeding. Results showed a small reduction for leukemia and for all cancers combined when infants had “ever been breastfed”.


A case controlled study, in the United Arab Emirates looked at 117 cases of acute lymphocytic leukemia and 117 controls. They found that the breastfeeding duration of those with leukemia was significantly shorter than the breastfeeding duration of the controls. They concluded that the breastfeeding duration of six months or longer may protect against childhood acute leukaemia and lymphomas.


Increased risk of chronic diseases
A review of infant feeding practices and childhood diseases shows increased risk for Type 1 diabetes, celiac disease, some childhood cancers, and inflammatory bowel disease associated with artificial infant feeding.


Celiac disease may be triggered by an autoimmune response when an infant is exposed to a food containing gluten proteins. In order to investigate the impact of breastfeeding on this response, Ivarsson and her team of researchers looked at the breastfeeding patterns of 627 children with celiac disease and at 1254 healthy children to determine the effect of breastfeeding during the time of introduction of gluten containing foods on the outcome of the development of celiac disease.

An astounding 40 per cent reduction was report for the development of celiac disease in children at two years of age or younger for those who were breastfed when dietary gluten was introduced. And the effect was even more pronounced in infants who continued to be breastfed after dietary gluten was introduced, the authors noted.


Increased risk of diabetes
To determine the link between cow’s milk consumption and type 1 diabetes, the development of antibody response to cow’s milk protein, Italian researchers measured the antibody response of 16 breastfed and 12 cow’s milk fed infants under four months of age. Cow’s milk fed infants had elevated levels of beta-casein antibodies when compared to breastfed infants. They concluded that breastfeeding for the first four months prevented the production of antibodies and could have a preventive effect on the development of Type 1 diabetes.


In this case-controlled study, 46 native Canadian Type II diabetes patients were matched with 92 controls. Pre and postnatal risk factors were compared. Breastfeeding was found to reduce the risk of Type II diabetes.

Young TK, Murrett PJ, Tashok SP, Sellers EA, Dean HI,