

Advantages of Breastfeeding

Compiled by Jon Ahrendsen, MD, FAAFP

Below is a compilation of various medical studies on the advantages of breastfeeding, compiled by Dr. Jon Ahrendsen. Don't forget about one of the main benefits of breastfeeding: watching your happy, healthy child grow up, knowing you've given her the very best you could give.

Enjoy!

Benefits for Infants

1. Protects Against Infection

a. Diarrhea

Children less than 12 months of age had a lower incidence of acute diarrheal disease during the months they were being breastfed than children that were fed with formula during the same period.

Source: Lerman, Y. et al. "Epidemiology of acute diarrheal diseases in children in a high standard of living settlement in Israel". *Pediatr Infect Dis J* 1994; 13(2):116-22.

b. Haemophilus Influenza

In a population based case control study of risk factors for primary invasion of haemophilus influenza, type B disease, breastfeeding was protective of infants less than 6 months of age.

Source: Cochi, S.L. "Primary Invasive Haemophilus Influenza Type B Disease, A Population Based Assessment of Risk Factors". *Journal of Pediatrics* 1986.

c. Enhances Vaccine Response

The antibody levels of immunized infants were significantly higher in the breastfed than the formula-fed group. These findings are strong evidence that breastfeeding enhances the active humoral immune response in the first year of life.

Source: Papst, H.F., Spady, D.W. "Effect of Breast Feeding on Antibody Response to Conjugate Vaccine". *Lancet*, 1990.

The breastfed group had significantly higher antibody levels than two formula-fed groups together. Breastfed infants thus showed better serum and secretory responses to perioral and parenteral vaccines than the formula-fed, whether with a conventional or low-protein content.

Source: Van-Coric, M. "Antibody Responses to Parental & Oral Vaccines Where Impaired by Conventional and Low-Protein Formulas as Compared to Breast Feeding". *Acta Paediatr Scand* 1990; 79: 1137-42.

Human milk can transfer specific or nonspecific immunities to the external mucosal surface of the intestine and possibly to the respiratory tract of the newborn. The acquisition of such passive immunity is particularly important in the early neonatal period when the immune system is immature.

Source: Chang, S.J. "Antimicrobial Proteins of Maternal and Cord Sera and Human Milk in Relation to Maternal Nutritional Status". *A. M. J. CLIN NUTR*, 1990.

d. NEC

Among babies born at more than 30 weeks gestation, confirmed necrotizing enterocolitis was rare in those whose diet included breast milk; it was 20 times more common in those fed formula only.

Source: Lucas, A., Cole, T.J., "Breast Milk and Neonatal Necrotizing Enteral Colitis". Lancet 1990; 336:1519-23.

e. Otitis Media

Short duration of breastfeeding involved another significant risk of recurrent respiratory infections and otitis media.

Source: Alho, O., "Risk Factors for Recurrent Acute Otitis Media and Respiratory Infection in Infancy". Int J Ped Otorhinolaryngology 1990; 19:151-61.

Significantly increased risk for acute otitis media as well as prolonged duration of middle ear effusion were associated with male gender, sibling history of ear infection and not being breastfed.

Source: Teele, D.W., "Epidemiology of Otitis Media During the First Seven Years of Life in Greater Boston: A prospective, Cohort Study". J of INFEC DIS.1989.

f. Herpes Simplex

Mothers milk could play a role in the protection of newborns from Herpes Simplex virus II contamination.

Source: Lopez, I., "Neutralizing Activity Against Herpes Simplex Virus in Human Milk". Breast Feeding REV 1990; 11(2): 56-58.

g. Respiratory Syncytial Virus (RSV)

Breastfeeding was associated with a lower incidence of RSV infection during the first year of life.

Source: Holberg, C.J., "Risk Factors for RSV Associated lower Respiratory Illnesses in the First Year of Life". AM J Epidemiol 1991; 133 (135-51).

h. Respiratory Infections

The authors presented results found in infants with two or more episodes of acute chronic bronchitis. They found that approximately twice as many bottle-fed infants presented with the problem as those who were breastfed.

Source: de Duran, C.M. "Cytologic Diagnosis of Milk Micro Aspiration". IMM ALLERGY PRACTICE 1991; xiii (10);402-5.

There was a strong negative effect modification by breastfeeding: relative odds of respiratory illness with maternal smoking were seven times higher among children who were never breastfed than among those who were breastfed.

Source: Woodwar, A. "Acute Respiratory Illness in Adelaide Children: Breast Feeding Modifies the Effect of Passive Smoking". J Epidemiol in Comm Health 1990;44:224-30.

2. Protects Against Illnesses

a. General

Infants of a middle class and well-educated populations benefit from the breastfeeding practice and its protective effect, more so if they are exclusively breastfed and for a longer period.

Source: Palti, H., "Episodes of Illness in Breast Fed & Bottle Fed infants in Jerusalem". ISR J MED SCI, 1984.

b. Immunologic Development

Enhanced fecal SIgA in breastfed infants is not caused solely by the presence of IgA in breast milk; it represents a stimulatory effect of breastmilk on the gastrointestinal humoral immunologic development.

Source: Koutras, A.K., "Fecal Secretory Immunoglobulin A in Breast Milk vs. Formula Feeding in Early Infancy". J Ped Gastro Nutr, 1989.

c. Wheezing

Breastfeeding seems to protect against wheezing, respiratory tract illnesses in the first four months of life, particularly when other risk factors are present.

Source: Wright, A.L., "Breastfeeding and lower respiratory Tract Illnesses in the First Year of Life." British Medical Journal, 1989.

d. SIDS

A study indicated that breastfeeding was protective against SIDS, Consistent with an effect mediated through the prevention of gastrointestinal and/or respiratory disease.

Source: Hoffman, H.J., "Risk Factors for SIDS: Results of the National Institute of Child Health and Human Development SIDS Cooperative Epidemiologic Study". Ann NY ACAD Sci, 1988.

Not breastfeeding at discharge from an obstetric hospital at any stage of the infants life was associated with an increased risk of SIDS.

Source: Mitchell, A. "Results from the First Year of The New Zealand Count Death Study". N.Z. Med A, 1991; 104:71-76.

e. General Morbidity

There is an inverse relationship to breastfeeding and morbidity. This was most prominent in the first year of life, but it was also present in the first three years.

Source: Van Den Bogaard, C. "Relationship Between Breast Feeding in Early Childhood and Morbidity in a General Population". Fan Med, 1991; 23:510-515.

f. AIDS

The lack of a dose response affect between breastfeeding and perinatal HIV-1 transmission in the presence of the protective effect of breastfeeding against common causes of early childhood morbidity and mortality support the current WHO recommendation that breastfeeding should continue to be promoted in all developing countries, including those with high HIV-1 prevalence rates in women of child bearing age.

Source: Ryder,R., "Evidence from Zaire that Breastfeeding by HIV-1 seropositive Mothers is not a Major Route for Perinatal HIV-1 Transmission but does Decrease Morbidity". AIDS 1991; 5(6):709-14.

g. Infant Survival

There is an association between breastfeeding up to 6 months of age and survival of infants throughout the first year of life. The younger the infant and the longer the breastfeeding, the greater the estimated benefits in terms of death averted.

Source: Habicht, J.P., "Does Breast Feeding Really Save Live, or Are Apparent Benefits due to Biases?" Am J Epidemiology, 1986.

h. Gastroesophageal Reflex

Breastfed neonates demonstrate gastroesophageal reflux episodes of significantly shorter duration than formula-fed neonates.

Source: Heacock, H.J., "Influence of Breast vs. Formula Milk in Physiologic Gastroesophageal Reflux in Health Newborn Infants". J. Pediatr Gastroenterol Nutr, 1992 January; 14(1): 41-6.

i. Multiple Sclerosis

Although thought to be multifactorial in origin, and without a clearly defined etiology, lack of breastfeeding

does appear to be associated with an increased incidence of multiple sclerosis.

Source: Dick, G. "The Etiology of Multiple Sclerosis." Proc Roy Soc Med 1976;69:611-5.

j. Inguinal Hernia

Human milk contains gonadotropin releasing hormone, which may affect the maturation of neonatal testicular function. This case control study showed breastfed infants had a significant dose response reduction in inguinal hernia.

Source: Pisacane, A. "Breast-feeding and inguinal hernia" Journal of Pediatrics 1995:Vol 127, No. 1, pp 109-111.

k. Cryptorchidism (Undescended Testicle)

This case controlled study showed a significant association of cryptorchidism and lack of breastfeeding.

Source: Mori, M. "Maternal and other factors of cryptorchidism: a case-control study in Japan" Kurume Med J 1992:39:53-60.

3. Protection From Allergies

a. Allergic Families

Breastfeeding, even for short periods, was clearly associated with lower incidence of wheezing, prolonged colds, diarrhea, and vomiting.

Source: Merrett, T.G., "Infant Feeding & Allergy: 12 Month Prospective Study of 500 Babies Born into Allergic Families". American Allergies, 1988.

b. Eczema

Eczema was less common and milder in babies who were breastfed (22%) and whose mothers were on a restricted diet (48%). In infants fed casein hydrolysate, soymilk or cows milk, 21%, 63%, and 70% respectively, developed atopic eczema.

Source: Chandra R.K., "Influence of Maternal Diet During Lactation and the Use of Formula Feed and Development of Atopic Eczema in the High Risk Infants". Br Med J. 1989.

4. Enhances Development and Intelligence

a. Higher IQ

Children who had consumed mother's milk by tube in early weeks of life had a significantly higher IQ at 7.5 to 8 yr.. than those who received no maternal milk, even after adjustment for differences between groups and mothers' educational and social class.

Source: Lucas, A., "Breast Milk and Subsequent Intelligence Quotient in Children Born Preterm". Lancet 1992;339:261-62.

b. Cognitive Development

Supplementary regression analysis examining the strength of relationship between duration of breastfeeding and cognitive development show a small but significant relationship between duration of breastfeeding and scores on the mental development index of the Bayley Scales at 1 and 2 years.

Source: Morrow-Tlucak, M. "Breast Feeding and Cognitive Development During the First 2 years of Life." Soc Sci Med, 1988.

In 771 low-birth-weight infants, babies whose mothers chose to provide breastmilk had an 8-point advantage in mean Bayley's mental developmental index over infants of mothers choosing not to do so.

Source: Morley, R., "Mothers Choice to provide Breast Milk and Developmental Outcome." Arch Dis Child, 1988.

c. Social Development

The psychomotor and social development of breastfed babies clearly differs from that of bottle-fed ones and leads at the age of 12 months to significant advantages of the psychomotor and social capabilities.

Source: Baumgartner, C., "Psychomotor and Social Development of Breast Fed and Bottle Fed babies During their First year of Life". Acta Paediatrica Hungarica, 1984.

Long Term Benefits for Infants

a. Dental Health

Among breastfed infants, the longer the duration of nursing the lower the incidents of malocclusion.

Source: Labbok, M.H. "Does Breast Feeding Protect against Malocclusion? An Analysis of the 1981 Child Health Supplement to the National Health Interview Survey". American Journal of Preventive Medicine, 1987.

b. Toddler Health

Mothers of 67 infants were questioned about the types and duration of illness episodes requiring medical care between 16 and 30 months of age. Breastfeeding was noted to decrease the number of infant illnesses and indirectly improve toddler health.

Source: Gulick, E.E. "The Effects of Breastfeeding on the Toddler Health." Pediatric Nursing, 1986.

c. Diabetes Mellitus

Children who developed IDDM in New South Wales, Australia were matched with healthy children (ratio 1:2) of the same sex and age for comparison. Those who were exclusively breastfed during their first three months of life had a 34% lower risk of developing diabetes than those who were not breastfed. Children given cow's milk-based formula in their first three months were 52% more likely to develop IDDM than those not given cow's milk formula.

Source: Diabetes Care 1994;17:1381-1389, 1488-1490.

d. Childhood Cancer

Children who are artificially fed or breastfed for only 6 months or less, are at an increased risk of developing cancer before age 15. The risk of artificially fed children was 1-8 times that of long-term breastfed children, and the risk for short term feeders was 1-9 times that of long term breast feeders.

Source: Davis, M.K. Infant Feeding and Childhood Cancer. "Lancet 1988.

e. Chron's Disease

In this study, lack of breastfeeding was a risk factor associated with later development of Crohn's disease.

Source: Koletzko, S., "Role of Infant Feeding Practices in Development of Crohn's Disease in Childhood." Br Med J, 1989.

f. Hodgkin's Disease

A statistically significant protective effect against Hodgkin's disease among children who are breastfed at least 8 months compared with children who were breastfed no more than 2 months.

Source: Schwartzbaum, J. "An Exploratory Study of Environmental and Medical Factors Potentially Related to Childhood Cancer." Medical & Pediatric Oncology, 1991; 19 (2):115-21.

g. Juvenile Rheumatoid Arthritis (JRA)

Preliminary data from researchers at the University of North Carolina and Duke University comparing 54 children with JRA and a control group without JRA of similar age and race indicates that children who were breastfed were only 40% as likely to develop JRA.

Source: "Mother's Milk: An Ounce of Prevention?" Arthritis Today May-June 1994.

Benefits for Mothers

1. Delays Fertility

Women who nurse frequently during exclusive breastfeeding remained amenorrhoeic longer than infrequent nursers, introduced supplements later and did not resume menses as promptly thereafter. Duration of exclusive nursing and night nursing after supplementation were the major influences on amenorrhoea.

Source: Elias, M.F. "Nursing Practices and Lactation Amenorrhoea." Journal of Biosci, 1968.

2. Breast Cancer

Among both premenopausal and postmenopausal women, risk of breast cancer decrease with increasing duration of lifetime lactation experience although the effect was consistently stronger for premenopausal women.

Source: McTieman, A., Evidence of Protective Effect of Lactation on Risk of Breast Cancer in Young Women." American Journal of Epidemiology, 1986.

After controlling for age at first full term pregnancy and other potentially compounding factors, parity and duration of breast feeding also had a strong influence on the risk of breast cancer. Compared with parous women who never breast fed, women who had breast fed for 25 months or more had a lower relative risk.

Source: Layde, P.M., "The Independent Associations of Parity Age at First full Term Pregnancy, and Duration of Breast Feeding with the Risk of Breast Cancer." Journal of Clinical Epidemiol, 1989.

If women who do not breastfeed or who breastfed for less than 3 months were to do so for 4 to 12 months, breast cancer among parous premenopausal women could be reduced by 11%; if all women with children lactated for 24 months or longer, the incidence might be reduced by nearly 25%.

Source: Newcomb, P. et al. "Lactation and reduced risk of premenopausal breast cancer." N Engl J Med 1994; 330(2):81-87.

Women who were breastfed as infants, even if only for a short time, showed an approximate 25% lower risk of developing premenopausal or postmenopausal breast cancer, compared to women who were bottle-fed as an infant.

Source: Freudenheim, J. "Exposure to breast milk in infancy and the risk of breast cancer." Epidemiology 1994 5:324-331.

3. Uterine Cancer

A protective effect against uterine cancer was found for women who breastfeed.

Source: Brock, K.E., "Sexual, Reproductive, and Contraceptive Risk Factors for Carcinoma-in-Situ of the Uterine Cervix in Sidney." Medical Journal of Australia, 1989.

4. Ovarian Cancer

Breastfeeding should be added to the list of factors that decrease ovulatory age and thereby decrease the risk of ovarian cancer.

Source: Schneider, A.P. "Risk Factor for Ovarian Cancer. "New England Journal of Medicine, 1987.

5. Endometrial Cancer

Lactation provides a hypoestrogenic effect with less stimulation of the endometrial lining. This event may offer a protective effect from endometrial cancer.

Source: Petterson B, et al. "Menstruation span- a time limited risk factor for endometrial carcinoma." Acta Obstet Gyneocol Scand 1986;65:247-55.

6. Emotional Health

At one month postpartum, women who breastfed their infants had scores indicating less anxiety and more mutuality than the women bottle feeding their infants.

Source: Virden, S.F., "The Relationship Between Infant Feeding Method and Maternal Role Adjustment." Journal of Nurse Midwives, 1988.

7. Decrease Insulin Requirements

Breastfeeding decreased insulin requirements in diabetic women. Reduction in insulin dose postpartum was significantly greater in those who were breastfeeding than those who were bottle feeding.

Source: Davies, H.A., "Insulin Requirements of Diabetic Women who Breast Feed." British Medical Journal, 1989.

8. Decreased Osteoporosis

The odds ratio that a woman with osteoporosis did not breastfeed her baby was four times higher than for a control woman.

Source: Blaauw, R. et al. "Risk factors for development of osteoporosis in a South African population." SAMJ 1994; 84:328-32.

9. Promotes Postpartum Weight Loss

Mothers who breastfed exclusively or partially had significantly larger reductions in hip circumference and were less above their pre-pregnancy weights at 1 month postpartum than mothers who fed formula exclusively.

Source: Kramer, F., "Breastfeeding reduces maternal lower body fat." J Am Diet Assoc 1993;93(4):429-33.

Benefits for Society

1. Optimum Child Spacing

Though less of a factor in the Western world, sufficient birth spacing helps with the survival of the older sibling and the new infant. Prolonged lactation helps to promote the spacing of children.

Source: Thapa, S., "Breastfeeding, birth spacing and their effects on child survival." Nature 1988;335:679-82.

2. Improved Vaccine Effectiveness

Breastfed infants showed a better serum and secretory responses to peroral and parenteral vaccines than the formula-fed, whether with a conventional or low protein content.

Source: Han-Zoric, M., "Antibody responses to parenteral and oral vaccines are impaired by conventional and low protein formulas as compared to breastfeeding." Acta Paediatr Scand 1990; 79:1137-42.

3. Financial Savings to Government and Families

a. Food Expense

The cost to supply artificial baby milk (ABM) to one child is between \$800 and \$1,200 per year depending on the brand and area of the country.

b. Medical Expenses

A pre-publication study by the Wisconsin State Breastfeeding Coalition estimated the following health care savings in Wisconsin if Breastfeeding rates were at 75% at discharge-50% at six months:

\$4,645,250/yr Acute Otitis Media

\$437,120/yr Bronchitis

\$6,699,600/yr Gastroenteritis

\$262,440/yr Allergies

\$758,934/yr Asthma

\$578,500/yr Type I Diabetes (birth -18yrs)

\$17,070,000/yr Breast Cancer

\$30,984,432/yr TOTAL HEALTH COST SAVINGS

4. More Ecological

There is less use of natural resources (glass, plastic, metal, paper) and also less waste for landfills.

5. Less Child Abuse

A retrospective review of 800 pregnancies at one family practice revealed an association between lack of breastfeeding and physical and sexual abuse of the mother and/or her children. This anecdotal association, has not been previously reported, is worth further study using more rigorous methods

Source: Acheson, L., "Family Violence and Breast-feeding" Arch Fam Med July 1995; Vol 4,pp 650-652.

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