

Touch the Future
MOTHER-INFANT BONDING & BREASTFEEDING
A Public Awareness & Education Program

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Research Summary

When infants and children are not well nourished from the time of conception--through the formative periods of brain development during fetal life, infancy, childhood and adolescence--the outcomes of youth and adulthood are seriously limited. These limitations remain, in one form or another, even if a rich nurturing environment is provided later in life.

An instructive analogy is the acquisition of verbal language. Any infant and child in the world can learn to understand and speak any language of the world--like a native--if that infant is exposed to the sounds of that language during the formative periods of brain development for verbal language acquisition. Once that "window" of formative brain development has passed for verbal language acquisition, the learning of that language later in life becomes very difficult and will always be spoken with an accent--as a "foreigner". Additionally, the rich culture that gave birth to that language can never be fully understood--only its reflection in the signs and symbols of verbal-cognitive language which is not an "embodied" language that can be emotionally known or "felt". The "soul" of the language, which is embedded in the culture, has been lost.

Another dramatic example of the power of the early environment for the shaping of the future and what becomes possible can be found in the ancient Chinese practice of "foot binding" of the female infant that prevents the foot from developing into its normal shape and function. After the formative period for foot development has passed, no amount of "therapy" can restore normal shape or function to that stunted, malformed foot. Children, youth and adults with such feet can only hobble through life, never being able to walk or run.

These same principles apply to human development, which reinforce the inherent limitations of therapies instituted later in life to correct the deficiencies created by early deprivation. The goal of this proposal is to recognize the inherent limitations of later "therapies" or "interventions" and to assure that the infant/child has those early nurturing experiences needed for whole and full development.

The developing brain makes no exceptions and we must give equal attention to the full development of the emotional-social-sexual limbic brain which precedes the development of the intellectual-cognitive neocortical brain.

Long before the infant/child can understand or speak the neocortical verbal word, the infant/child already knows from the limbic brain whether it is wanted and loved--or not. No written text is needed to "know" if one is wanted or not.

The adult response to the infant produces a neurointegrative brain or a neurodissociative brain through sensory and nurturing experiences of early life or their absence. Compelling research from many fields is focusing on the critical way the environment impacts brain development, which ultimately determines the kind of society we become: an Integrative Society--Compassionate, Joyful and Loving or its opposite: a Dissociative Society--Alienated, Depressed, and Violent.

Past and Current Findings

Many studies support the necessity of breastfeeding for normal immunological development and brain development of the infant/child (WHO/UNICEF, 1980; Newman, 1995; Prescott, 1997; AAP, 1997; Satcher, 2000 and many others). A new study, Zheng, et al (2001) documents that ***breastfeeding greater than two years is a significant factor in the prevention of adult breast cancer***. In continuing studies on the relationship of breastfeeding to behavior, Prescott (1977) has documented the high nurturance of primitive cultures that breastfeed for 2.5 years or longer; and that 77% of 26 these cultures, which breastfeed for 2.5 years or longer, are rated low or absent in *suicide*. This effect is attributed to both sensory factors associated with bonding, as well as the essential role that the amino acid tryptophan--richly present in colostrum and breastmilk but absent in formula milk--has for the development of brain serotonin. Deficits of brain serotonin result in depression, impulse dyscontrol and violence (Coleman, 1971; Prescott, 1968, 1976, 1996, 1997 and many others). See: <http://www.violence.de/coleman/article.html>. Only 16% of American mothers are breastfeeding at one year of age, which is malnutrition for normal brain development and normal emotional-social-sexual development.

Fazzolari-Nesci, et al (1992) have shown that tryptophan fortified infant formula milk is necessary to match plasma tryptophan concentrations in breastfed infants. Kamimura, Eguchi and Sekiba (1991) have documented tryptophan and its metabolite concentrations in human plasma and breast milk. Neuringer (1993) has shown that cerebral cortex docosahexaenoic acid--necessary for brain growth and development--is lower in formula-fed than in breast-fed infants. Lanting, et al (1994) have shown neurological differences between infant formula children and breastfed children at nine years of age. Unfortunately, none of the above studies were cited in the DHHS Surgeon General's report on breastfeeding (Satcher, 2000).

None of the above studies, (except for Zheng and Prescott's cross-cultural studies), include breastfeeding samples of 2.5 years or greater which appears necessary to realize the full benefits of breastfeeding for normal physiological health and emotional-social health.

It should also be noted that our closest genetic relative, the bonobo chimpanzee, which is the most peaceful and non-violent primate on the planet, breastfeeds its offspring to four years of age (De Wall and Lanting, 1997). In contrast, the non-breastfeeding human primate is the most violent primate on the planet.

The DHHS Surgeon's General report on "Healthy People 2010 Breastfeeding Objectives for the Nation" noted the following statistics on percent breastfeeding for all women for the baseline year of 1998 with projections for the target year of 2010.

Time Period	1998	Year 2010
1. Early postpartum period	64	75%
2. At 6 months	29%	50%
3. At 1 year	16%	25%

Although, the SG Breastfeeding Report acknowledged that the United States recognized the importance of breastfeeding by signing (in 1990) the *Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding* by the World Health Organization (WHO) and UNICEF (that was established ten years earlier in 1980), no recognition was given to its primary recommendation of breastfeeding for "two years of age and beyond". The American Academy of Pediatrics that recommended breastfeeding for only one year also ignored this recommendation. (Breastfeeding and the Use of Human Milk (RE9729), *Pediatrics*, 1997, 100(6): 1035-1039). This disparity in recommendations for duration of breastfeeding between WHO/UNICEF and the United States Surgeon General and American Academy of Pediatrics, which was not acknowledged by either U.S. organization, does not leave confidence in either the U.S. DHHS Office of the Surgeon General or that of the American Academy of Pediatrics.

Despite these limitations and the impoverished breastfeeding in the United States, the SG Breastfeeding Report, states:

Breastfeeding is the ideal method of feeding and nurturing infants:

Breast milk is the most complete form of nutrition for infants.

Breastfeeding protects an infant from a wide array of infectious and noninfectious diseases.

Breastfeeding improves maternal health by reducing postpartum bleeding and may lower the risk of pre-menopausal breast cancer and ovarian cancer.

More specifically, it was recognized that the following infections are lower in incidence and severity in breastfed infants than in formula-fed infants, although the duration of breastfeeding was not stated to realize these health benefits:

Diarrhea

Respiratory tract infections

Otitis media

Pneumonia

Urinary infections

Necrotizing enterocolitis

Invasive bacterial infection

Benefits also included the reduction of risks for the following chronic diseases:

Diabetes (Type 1 & 2)

Celiac disease

Inflammatory bowel disease

Childhood cancer

Allergic disease/asthma

And to an enhanced immune system response with breastfeeding for the following immunizations:

Polio

Tetanus

Diphtheria

Haemophilus influenzae

And to respiratory syncytial virus infection, a common infant infection

Certain possible developmental benefits were also noted that included

Cognitive development

Long-chain polyunsaturated fatty acids for brain growth and development

Neurological development, specifically visual acuity

Too few studies were cited to give high confidence in these specific effects, particularly, when the duration of breastfeeding was rarely identified for the health benefits cited.

Improved maternal health and socioeconomic benefits were also noted from breastfeeding:

Increased levels of oxytocin, a hormone that stimulates uterine contractions for placental expulsion; and milk ejection--not cited in the report--but crucial in the immediate postpartum period.

Minimizes postpartum maternal blood loss.

Induces a more rapid uterine involution.

Delays resumption of normal ovarian cycles and return of fertility.

Increased self-confidence and facilitated bonding with their infants (3 references).

Cost reductions with breastfeeding, re. costs of formula milk, fewer sicknesses, prescriptions and hospitalization. Total medical cost expenditures were estimated to be 20% lower for fully breastfed infants when compared to never-breastfed infants.

It was generally recognized that:

Exclusive breastfeeding during the first several months of infant life produces the strongest protection against infection.

Health benefits continue even after breastfeeding ceases.

Breastfeeding into the second 6 months of life and longer provides even greater protection against infection.

Exclusively breastfed infants have fewer illnesses than those who were never breastfed.

The Strategic Plan for Breastfeeding in the United States has four goals:

"Assure access to comprehensive, current and culturally appropriate lactation care and services for all women, children, and families"

"Ensure that breastfeeding is recognized as the most normal and preferred method of feeding infants and young children.

Ensure that all Federal, State, and local laws relating to child welfare and family law recognize and support the importance and practice of breastfeeding".

Increase protection, promotion, and support for breastfeeding mothers in the work force.

There were several recommendations for future research but none of them included the assessment of various durations of breastfeeding on brain development (specifically, brain neurotransmitters), medical health benefits cited/claimed nor upon the emotional-social-sexual development of the child and its future. Specifically, sexual functioning, stability of familial relationships, depression, drug abuse, child abuse/neglect and the violence of suicide and homicide that are of pre-eminent importance but never mentioned. These omissions become particularly inexplicable given the recommendations of WHO/UNICEF of breastfeeding for "two years of age and beyond" and the accumulating evidence that breastfeeding beyond two years of age is necessary to realize certain physiological health and psychosocial health benefits.

From the perspective of millions of years of mammalian evolutionary biology, it would be helpful to reflect upon our closest genetic relative, the bonobo chimpanzee-- which is the most peaceful and non-violent primate on the planet-- who breastfeeds and body-carries its offspring to *four years of age* (De Wall and Lanting, 1997). In contrast, the highly non-breastfeeding and non-baby carrying human primate is the most violent primate on the planet. We have something to learn here.

[De Wall, F. and Lanting, F (1977). *Bonobo. The Forgotten Ape*. University of California Press, Berkeley, Los Angeles, London.]

The benefits of extended breastfeeding for both mother and her infant.

Our goal is to create an educational public awareness campaign which encourage and support breastfeeding on demand and for a duration of "two years of age and beyond", as recommended by WHO and UNICEF.

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