

The Importance of Nutritional Content in Breast Milk

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Abstract

Breastfeeding, or nursing, is the process by which human breast milk is fed to a child. Breast milk may be from the breast, or may be expressed by hand or pumped and fed to the infant. The World Health Organization (WHO) recommends that breastfeeding begin within the first hour of a baby's life and continue as often and as much as the baby wants. Health organizations, including the WHO, recommend breastfeeding exclusively for six months. This means that no other foods or drinks, other than vitamin D, are typically given. WHO recommends exclusive breastfeeding for the first 6 months of life, followed by continued breastfeeding with appropriate complementary foods for up to 2 years and beyond. Of the 135 million babies born every year, only 42% are breastfed within the first hour of life, only 38% of mothers practice exclusive breastfeeding during the first six months, and 58% of mothers continue breastfeeding up to the age of two years and beyond.

Keywords: Breastfeeding; Lactation; Postpartum weight retention; Obesity; Maternal health; Infant health

Introduction

Breastfed children perform better on intelligence tests, are less likely to be overweight or obese and less prone to diabetes later in life. Women who breastfeed also have a reduced risk of breast and ovarian cancers. Breastfeeding has a number of benefits to both mother and baby that infant formula lacks. Increased breastfeeding to near-universal levels in low and medium income countries could prevent approximately 820,000 deaths of children under the age of five annually. Breastfeeding decreases the risk of respiratory tract infections, ear infections, sudden infant death syndrome (SIDS), and diarrhea for the baby, both in developing and developed countries.¹³ Other benefits have been proposed to include lower risks of asthma, food allergies, and diabetes. Breastfeeding may also improve cognitive development and decrease the risk of obesity in adulthood. Breastmilk is the ideal food for infants. [1-4] It is safe, clean and contains antibodies which help protect against many common childhood illnesses. Breast milk provides all the energy and nutrients that the infant needs for the first months of life, and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one third during the second year of life.

What better way to give your child the best start in life than by nurturing, nourishing and loving care? Breastfeeding provides babies with the best start in life. It is a baby's best source of nutrition, bolstering brain development with lifelong benefits for the mother and the baby. It is critical for a child's growth and development and contributes significantly to their sense of security and bonding with the mother. And what better time to write about this than World Breastfeeding Week, which is celebrated globally in the first week of August.

Early initiation of breastfeeding within one hour of birth, exclusive breastfeeding for the first six months, the introduction of nutritionally adequate and safe complementary foods at six months together with continued breastfeeding up to 2 years of age or beyond offer a powerful line of defence against infection and malnutrition and boosters brain development in a child [5].

Breastfeeding is recognized as the unequalled way to provide optimal nutritional, immunological and emotional nurturing of infants. Footnote1Footnote2Footnote3 Consistent with the World Health Organization (WHO) global recommendation for public health, Health Canada recommends exclusive breastfeeding for the first 6 months, and

sustained for up to 2 years or longer with appropriate complementary feeding to support nutrition needs, for immunological protection and growth and development of infants and toddlers. Breastfeeding is also linked to many of the United Nations Sustainable Development Goals, such as no poverty, zero hunger, good health and well-being, no inequity, and responsible consumption and production.

Nutritional Content in Breast Milk

The pattern of intended nutrient content in breast milk is relatively consistent. Breastmilk is made from nutrients in the mother's bloodstream and bodily stores. It has an optimal balance of fat, sugar, water, and protein that is needed for a baby's age appropriate growth and development. 10-14 that being said, a variety of factors can influence the nutritional makeup of breast milk, including gestational age, age of infant, maternal age, maternal smoking, and nutritional needs of the infant. 10-14

The first type of milk produced is called colostrum. The volume of colostrum produced during each feeding is appropriate for the size of the new-born stomach and is sufficient [6-8], calorically, for feeding a new-born during the first few days of life. 27-34 Produced during pregnancy and the first days after childbirth, colostrum is rich in protein and Vitamins A, B12 and K, which supports infants' growth, brain development, vision, immune systems, red blood cells, and clotting cascade. The breast milk also has long-chain polyunsaturated fatty acids which help with normal retinal and neural development. The caloric content of colostrum is about 54 Calories/100mL. The second type of milk is transitional milk, which is produced during the transition from colostrum to mature breast milk. As the breast milk matures over the course to several weeks, the protein content of the milk decreases on average.¹⁰⁻¹⁴ the caloric content of breast milk is reflective of the caloric requirements of the infant^[9], increasing steadily

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after 12 months. 10-14 the caloric content of breast milk in the first 12 months of breastfeeding is approximated to be 58-72 Calories/100mL. Comparatively, the caloric content after 48 months is approximately 83-129 Calories/100mL. 10-14

When a mother has her full milk supply and is feeding her infant, the first milk to be expressed is called the foremilk. Foremilk is typically thinner and less rich in calories. The hind milk that follows is rich in calories and fat.

Social variables

Maternal employment negatively affects breastfeeding behaviour. Returning to full-time work outside the home is associated with reduced duration of breastfeeding, whereas length of maternity leave is positively associated with duration of breastfeeding. Many women use breast pumps as a coping strategy for combining breastfeeding and employment.

The impact of professional and lay support on breastfeeding outcomes was assessed in a 2007 Cochrane meta-analysis. All forms of lay and professional support increased the duration of any breastfeeding. However, lay support and combinations of lay and professional support were more effective for continuation of exclusive breastfeeding than professional support alone [10]. The authors suggested that interventions/strategies to improve breastfeeding behaviours based on face-to-face support may be more effective than support via telephone contact.

It is important for clinicians to promote breastfeeding duration and exclusivity to avoid placing infants at risk of the poor health outcomes that result from being fed infant formula instead of breast milk. To optimize breastfeeding behaviour, we must consider which of the determinants discussed are modifiable, when, and by whom. Attitudes, social variables, and health care practices represent a potential target for support and intervention.

Conclusion

As the overview presented here makes clear, there is persuasive evidence available to support recommendations by the health authorities and to support national goals for breastfeeding duration. Breastfeeding has a number of benefits to both mother and baby that infant formula lacks. Increased breastfeeding to near-universal levels in low and medium income countries could prevent approximately 820,000 deaths of children under the age of five annually. Breastfeeding

decreases the risk of respiratory tract infections, ear infections, sudden infant death syndrome (SIDS), and diarrhea for the baby, both in developing and developed countries. These recommendations and goals treat breastfeeding as the optimal way to feed infants during their first year of life, along with the timely addition of complementary foods. Moreover, there is a growing body of evidence that supports breastfeeding as a way to improve a woman's health after pregnancy as it may help her to return to a normal metabolic profile and to lose the weight she gained during pregnancy—among other benefits. Indeed “breast is best!” for mothers as well as their babies.

Conflict of Interest

The authors declared that there is no conflict of interest.

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