

Study Theme 1: Pregnancy and Nutrition

Breastfeeding

TABLE 16-3 Protective Factors in Breast Milk

Factor(s)	Action(s)
Antibodies	Offer protection in the upper respiratory tract and gastrointestinal tract by inhibiting pathogen attachment to the mucosa and protecting against invasive infections; may stimulate the infant's immune system
Bifidus factors	Favor the growth of the "friendly" bacterium <i>Lactobacillus bifidus</i> in the infant's digestive tract so that other, harmful bacteria cannot become established
Growth factors:	
Epidermal growth factor	Regulates cell growth, proliferation, and differentiation
Transforming growth factor-beta (TGF- β)	Inhibits inflammatory bowel diseases; supports a healthy epithelial barrier
Lactadherin	Inhibits pathogen attachment to the intestinal mucosa
Lactoferrin	Prevents bacteria from getting the iron needed to grow; helps absorb iron into the infant's bloodstream; kills some bacteria directly; inhibits viral activity
Lysozyme	Kills bacteria by assisting lactoferrin
Oligosaccharides	Help to establish and maintain growth of desired bacteria in gastrointestinal tract; inhibit pathogen attachment to the intestinal mucosa

Benefits of Breastfeeding for the Infant

- Provides superior nutrition for optimum growth
- Provides adequate water for hydration
- Protects against infection and allergies
- Promotes bonding and development

Differences between Types of Milk

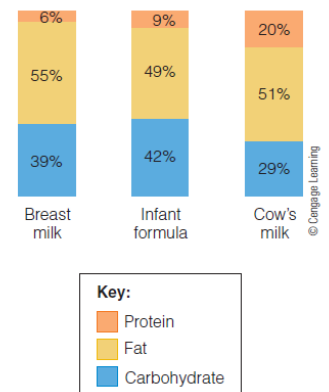
	Human milk	Animal milks	Infant formula
Protein	correct amount, easy to digest	too much, difficult to digest	partly corrected
Fat	enough essential fatty acids, lipase to digest	lacks essential fatty acids, no lipase	no lipase
Water	enough	extra needed	may need extra
Anti-infective properties	present	absent	absent

Breastmilk Composition

- Gestational age at birth (preterm and full term)
- Stage of lactation (colostrum and mature milk)
 - Colostrum
 - Antibody-rich
Many white cells
 - Purgative
Growth factors
Vitamin-A rich
 - Protects against infection and allergy
 - Clears meconium; helps prevent jaundice
 - Helps intestine mature; prevents allergy, intolerance
 - Reduces severity of some infection (such as measles and diarrhoea); prevents vitamin A-related eye diseases
- During a feed (foremilk and hindmilk)

Yielding Nutrients in Breast Milk, Infant Formula, and Cow's Milk

The average proportions of energy-yielding nutrients in human breast milk and formula differ slightly. In contrast, cow's milk provides too much protein and too little carbohydrate.



Breastfeeding Reduces the Risk of Chronic Disease

- Breastfeeding decreases the risk of allergic disorders (asthma, atopic dermatitis and allergic rhinitis)
- Breastfeeding decreases the prevalence of obesity in childhood at age five and six years