

Medicine Team - 431

Reproductive Block

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| Team notes are in
| orange, and important
| notes in red

Breast-feeding

- Breast-feeding is the normal feeding for infants during the first months of life, which **can't** be replicated
- It contains over 200 known components
- Breast milk sends both nutrients & non-nutritive signals to the neonate.
- **Content:** Fat, carbohydrates, proteins, minerals, vitamins, hormones, living cell components and enzymes.

History:

- Artificial feeding becomes readily available at turn of century.
- By 1940's control of birth & feedings given to doctors.
- By 1970, historical low in breastfeeding rates in western world.
- Rates peak in 1980s.
- Duration rates still generally low.

Recommendations:

- Exclusive breast-feeding until **6 months of age**.
- Introduce complimentary foods **with continued breastfeeding**.
- Optimal breastfeeding for **2 years** or longer

Properties of Breast Milk

- -Biologic specificity => Long-chain omega-3 Fatty Acids (DHA and AA).
- Colostrum: "The Golden Fluid" is the first milk produced by the mother postpartum.

Its small amount is enough to fill the size of the neonatal stomach, which has the volume of 1-3 ml. When the neonate is given artificial formula it is a much larger amount, too much for the newborn to handle. This leads to the excessive vomiting and GIT problems often found in neonates on formula.

Immunologic Specificity:

- Protection against pathogens & allergens.
- Kills pathogenic organisms or modifies their growth.
- Stimulates epithelial maturation for future defense.
- **First immunization.**
- **Protection against common respiratory and intestinal diseases.**
- **Colostrum** = Baby's first vaccination.
- Less risk of illness such as : Ear infections, pneumonia, crohn's disease and other bowel illnesses, stomach flu and other intestinal illnesses, ear infections, childhood cancers, diabetes, arthritis, allergies, asthma and eczema.

Breast Milk Composition

1- Fat:

4% concentration provides up to 50% of caloric needs.

- cholesterol levels constant
- lipolytic enzymes aid in fat digestion

2- Carbohydrates:

1-Lactose = predominant milk sugar in human milk.

- 7% concentration provides up to 40% caloric needs
- Essential for development of CNS,
- Enhances calcium & iron absorption)

2-Bifidus factor = growth factor present only in human milk

Required for establishing an acidic environment in the gut to inhibit growth of bacteria, fungi and parasites.

Anti-microbial activity

- Persists throughout lactation.
- Resists digestive enzymes in digestive tract.
- Acts at mucosal surfaces (e.g. GIT, respiratory, urinary tracts).

Contains a variety of heterogenous agents with this activity like:

1- Proteins:

-Lactoferrin → Inhibits bacterial growth by depriving them of iron necessary for their growth.

2- Immunoglobulins (IgG & IgA)

Important role in enhancing mucosal immunity and, thus, protecting the GI tract from foreign antigens or microorganisms.

Protects against infections like e.coli, polio, tetanus, measles etc...

Benefits of Breast Feeding:

Ecological

- Saves resources.
- Less waste.
- No refrigeration.
- No manufacturing.
- No bottles, cans.
- No trucking.

For Society

- Smarter, healthier citizens.
- Less cost to healthcare system.
- Stronger families.

For Families

- Less trips to doctors, hospitals.
- Less illness leading to less prescriptions.
- Less stress.
- More bonding.

Benefits to baby:

- Better dental health (less need for orthodontic care)
- Increased visual acuity.
- Decreased duration and intensity of illnesses.
- Less allergies.
- Better health & less risk of illnesses.

Benefits to Mother

- Medical: postpartum recovery
- Pride, empowerment, fulfillment and other psychological benefits (forming a bond and building a relationship with the child).
- Easier weight loss.
- Decreased risk of illness (breast cancer, osteoporosis, ovarian cancer).
- Birth control.

Establishing and maintaining the milk supply

- The breastfeeding should begin within **30 minutes to a few hours** after delivery if the condition of the mother and the baby permits
- Baby should be fed on demand.
- Within 4-6 weeks breast-feeding should become routine.
- Breastfeeding session should be 5-15 minutes long.
- Both breasts should be offered.
- The most satisfactory stimulus to the secretion of human milk is regular and complete emptying of the breast → milk production is inhibited when the secreted milk is not drained.

Signs for adequate breast-feeding:

- A satisfactory weight gain of baby.
- Baby looks active and well.
- Passes frequent but normal stools.
- Urinates a number of times/ daily without any sinister signs.

Why some mothers choose formula rather than breast milk?

- Distressed by physical discomfort caused by problems in early breastfeeding.
- Convenience issues.
- Pressures of employment/school.
- Worries that breast shape will change.
- Formula manufacturers manipulate people through their ads.
- Doctors and nurses need more lactation training
- Moms given very little time to adjust to changes of postpartum
- Family demands
- Unsupportive family/health professionals.
- Embarrassment
- Lack of self-confidence.
- Feeling that one cannot produce enough milk

Mother's milk vs. formula milk:

Barriers of Bonding:

- A Bottle places a physical barrier between mother and baby.
- Less skin to skin contact.
- Less eye contact
- The hormonal connection between the breastfeeding mother and baby cannot be experienced by the bottle feeding mother

Breast	Formula
Breast milk is ingeniously different every single day; adapts to the changing needs of the baby.	Formula milk for 3 days old babies is no different than formula milk for 3 months old infants.
Human milk is designed to support the development of large brains, capable of processing and storing lots of information.	Cows milk is designed to support functions, like constant grazing.

Illness relative risk: Female doctor did not mention relativity.

- Allergies, eczema - 2 to 7 times
- Urinary tract infections 2.6 to 5.5 times
- Inflammatory bowel disease 1.5 to 1.9 times
- Diabetes, type 1 2.4 times
- Gastroenteritis 3 times
- Hodgkin's lymphoma 1.8 to 6.7 times
- Otitis media 2.4 times
- Haemophilus influenzae meningitis 3.8 times
- Necrotizing enterocolitis 6 to 10 times
- Pneumonia/lower respiratory tract infection 1.7 to 5 times
- Respiratory syncytial virus infection 3.9 times
- Sepsis 2.1 times
- Sudden infant death syndrome 2.0 times
- Industrialized-world hospitalization 3 times

Preparation of the prospective mother

- Most women are physically capable of breastfeeding, provided they receive sufficient encouragement and are protected from discouraging experiences and comments while the secretion of breast milk is being established.
- Physical factors leading to good breastfeeding include: good health, having enough rest, freedom of worry, treatment of any disease, and adequate nutrition.
- Retracted & inverted nipples may cause difficulty in breastfeeding, but this is usually overcome by the use of pumps combined with suckling of breastfeeding.

Other options if breastfeeding is not possible:

Mom can still use her milk, even if she decides not to breastfeed:

- Use a breast pump (electric/manual)
- Cup or bowl feeding.
- Spoon-feeding.
- Eyedropper or feeding syringe.
- Nursing supplementer.
- Get milk from donation bank.



Contraindications

It is important to look at the entities that put the mother or infant at significant risk and are not remedial.

- Infectious Diseases
- Life – threatening illnesses in the mother, eg HIV
- Medications.

Take-home Message:

There is no freedom of choice for humans if it has been taken away from them at the beginning .Breast-feeding is not a choice, but an obligation to the choice, Give your child the freedom of choice.

Summary:

- Breast milk can't be replicated
- Its nutritive contents have a higher concentration and higher absorption than formula.
- It contains fat, carbohydrates, proteins, minerals, vitamins, hormones, living cell components and enzymes.
- The colostrum is small in amount but high in benefits.

Immune system in babies on formula

Weakened:

Due to lack of mothers immunoglobulins, as well as those developed by the mothers immune system to combat any diseases the baby may face.

Depressed:

Due to strange antigens in formulas disturbing the development of the immune system → at higher risk for developing autoimmune conditions, like eczema, asthma as well as food allergies.

The Breastfed Baby

Immune system.

Responds better to vaccinations. Human milk helps to mature immune system. Decreased risk of childhood cancer.

Skin.

Less allergic eczema in breastfed infants.

Joints and muscles.

Juvenile rheumatoid arthritis is less common in children who were breastfed.

Throat.

Children who are breastfed are less likely to require tonsillectomies.

Eyes.

Visual acuity is higher in babies fed human milk.

Ears.

Breastfed babies get fewer ear infections.

Higher IQ.

Cholesterol and other types of fat in human milk support the growth of nerve tissue.

Endocrine system.

Reduced risk of getting diabetes.

Mouth.

Less need for orthodontics in children breastfed more than a year. Improved muscle development of face from suckling at the breast. Subtle changes in the taste of human milk prepare babies to accept a variety of solid foods.

Bowels.

Less constipation.

Urinary tract.

Fewer infections in breastfed infants.

Appendix.

Children with acute appendicitis are less likely to have been breastfed.

Kidneys.

With less salt and less protein, human milk is easier on a baby's kidneys.

Respiratory system.

Breastfed babies have fewer and less severe upper respiratory infections, less wheezing, less pneumonia and less influenza.

Digestive system.

Less diarrhea, fewer gastrointestinal infections in babies who are breastfeeding. Six months or more of exclusive breastfeeding reduces risk of food allergies. Also, less risk of Crohn's disease and ulcerative colitis in adulthood.

Heart and circulatory system.

Breastfed children have lower cholesterol as adults. Heart rates are lower in breastfed infants.



Questions:

Exclusive breast-feeding is recommended for the first :

- a. 2 months
- b. 6 months
- c. 2 years

Breast milk contains ____ which is/are not found in formula:

- a. Nutrients
- b. Sugar
- c. Lactoferrin & Immunoglobulins

Breast-feeding should be commenced:

- a. Within hours after birth.
- b. 2 to 3 days after births
- c. A week after birth

Answers: B, C, A