

Infant feeding

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Diet of normal infant

In first six mo. Of life , human milk or various infant formula can provide complete nutrition to the growing infant.

Breast milk is the recommended source of nutrition for almost all children.

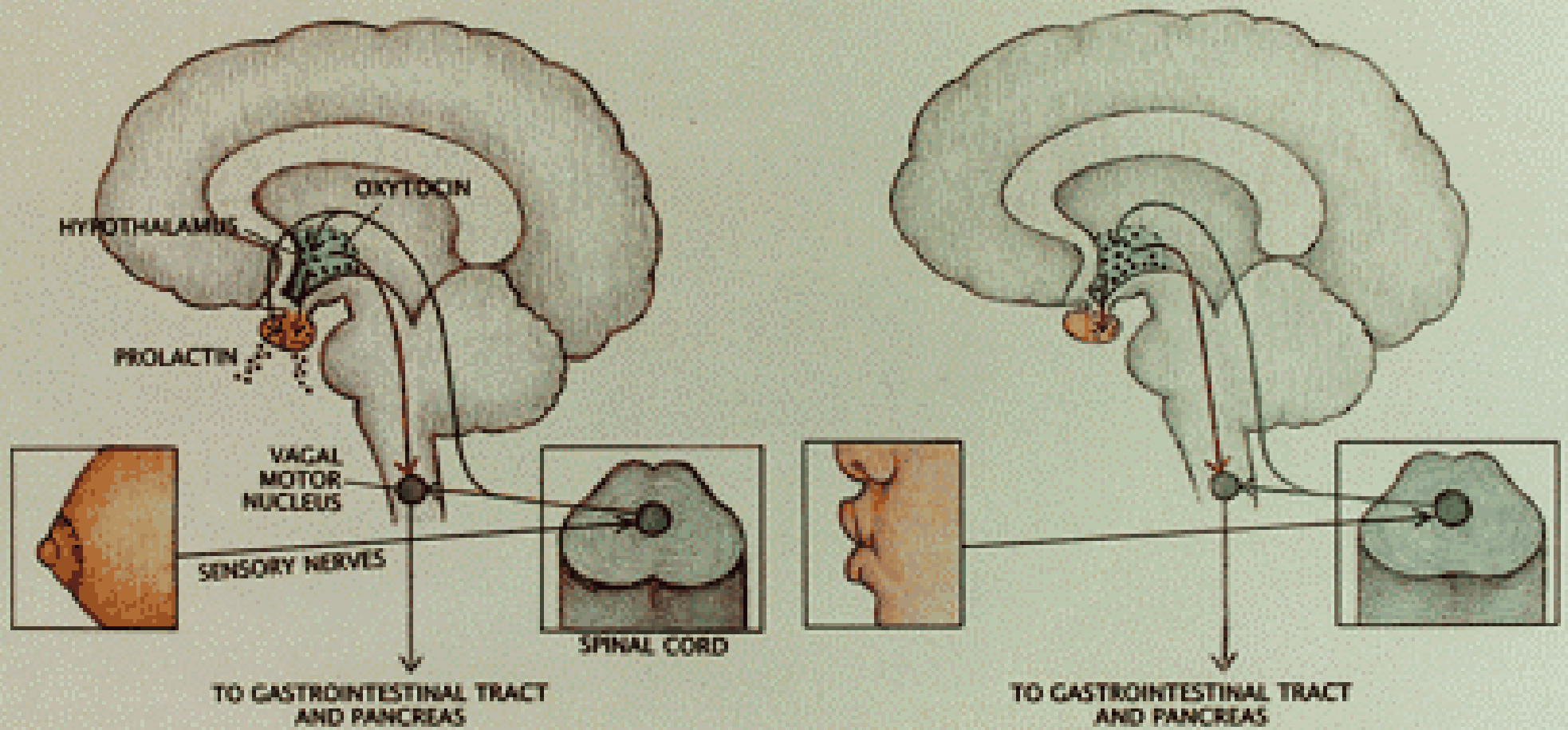
How is milk secreted?

- **Oxytocin** is another hormone that increases during pregnancy. This hormone causes tiny muscle cells within the breasts to contract and squeeze milk down the milk ducts toward the nipples. This process, called the let-down reflex, occurs each time you nurse your baby

Breast feeding physiology

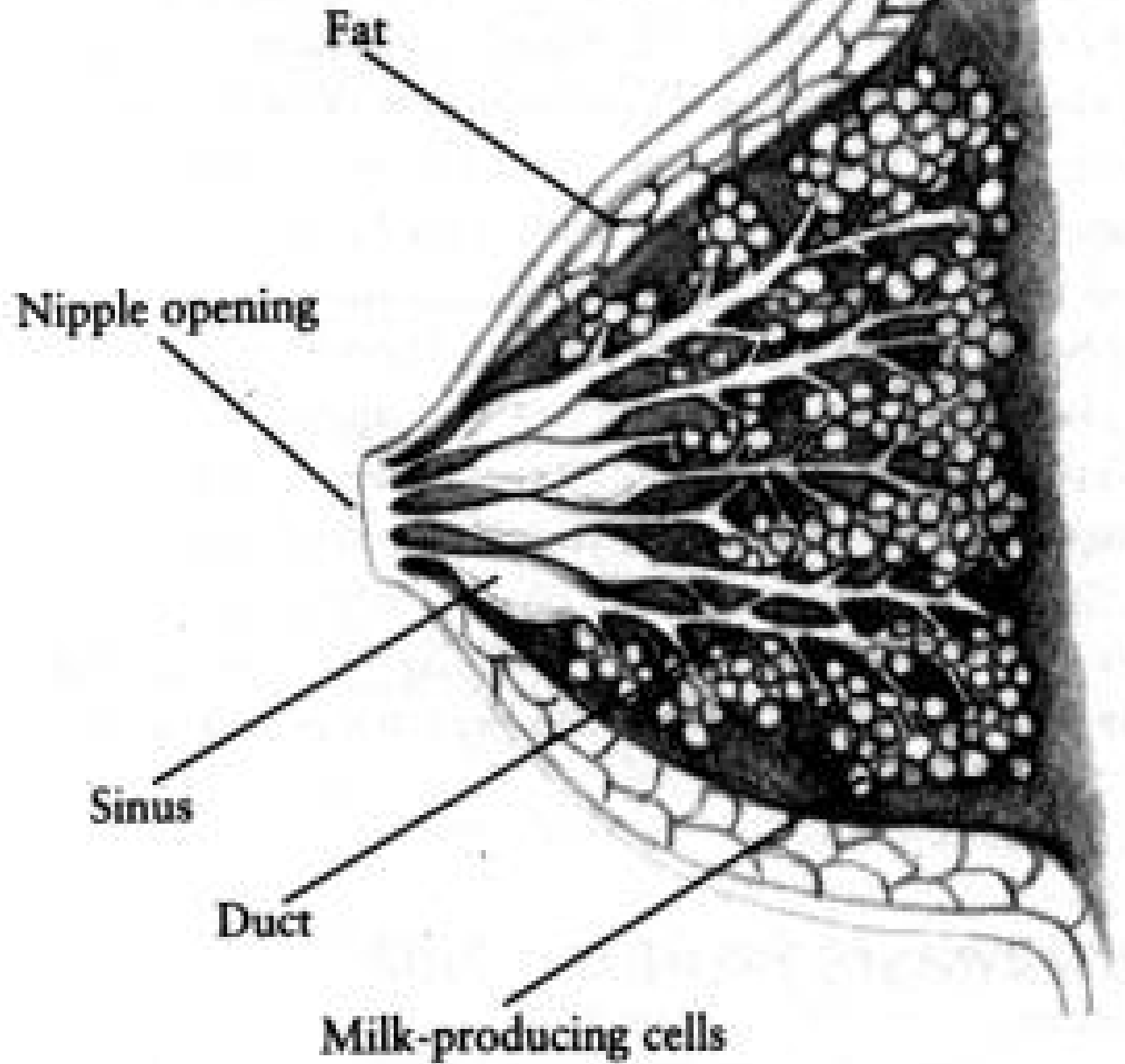
The suckling newborn stimulates the mother's Pituitary to release prolactin and oxytocin which in turn stimulate the production and letdown of breast milk.

During the first few days postpartum the infant receives antibody rich colostrum.



Feeding pathway

Anatomy



Advantages of Breast feeding

Why breast is best ?

1. anti-infective properties.

Humoral:

-Secretory Iga. - Bifidus factor

-Lysozyme. -Lactoferrin -Interferon.

Cellular:

Macrophages.

Lymphocytes.

2. Nutritional properties:

Protein quality.

Hyboallergenic.

Lipid quality.

Breast milk lipase.

Ca: ph.2:1

Low renal solute.

Iron.

Long chain polyun.f.a

3.other advantages :

Emotional.

Contraceptive.

Reduction in disease
occurrence in later life.

Maternal health.

Infant Bonding



Practical guide to successful breast feeding

1.establishment

2.technique of breast feeding.

3.duration of the feed.

4.one breast or both.

5.time and regularity of feeding.

6.minerals, vitamins and water supply

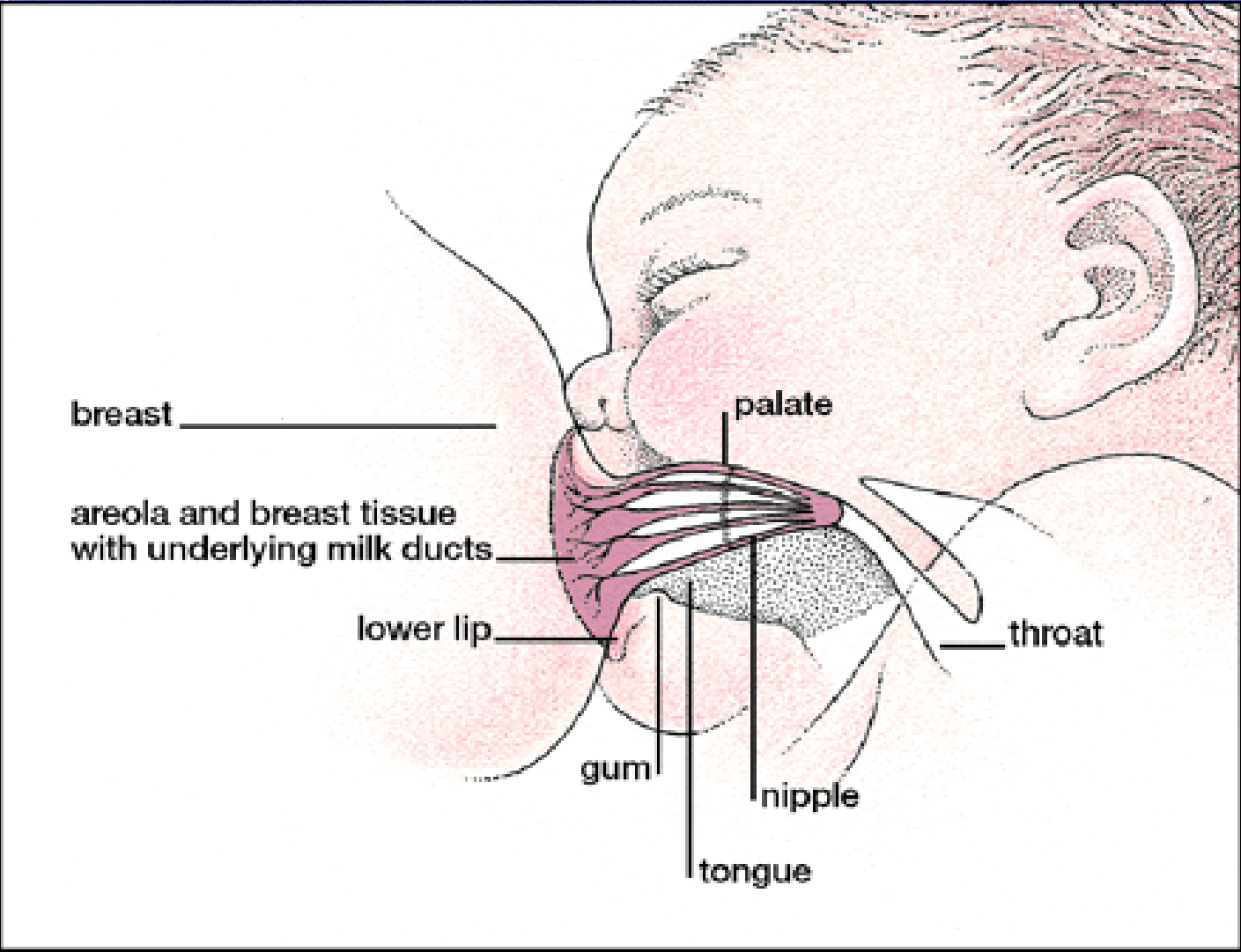
Latch-on

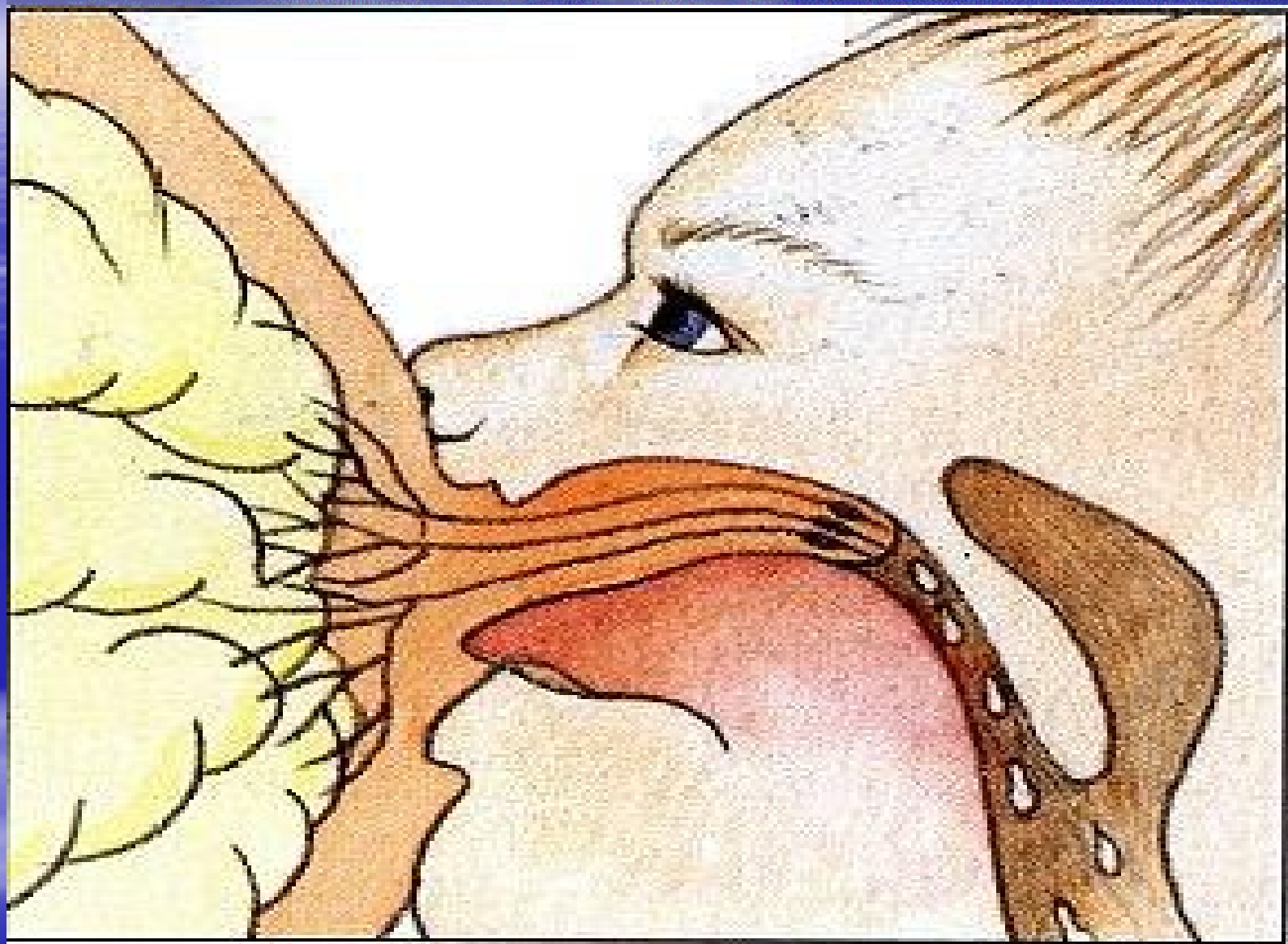
Correct latch-on is very important. As it:

- makes milk flow better
- prevents sore nipples
- keeps your baby satisfied
- stimulates a good milk supply
- helps to prevent overly full (engorged) breasts



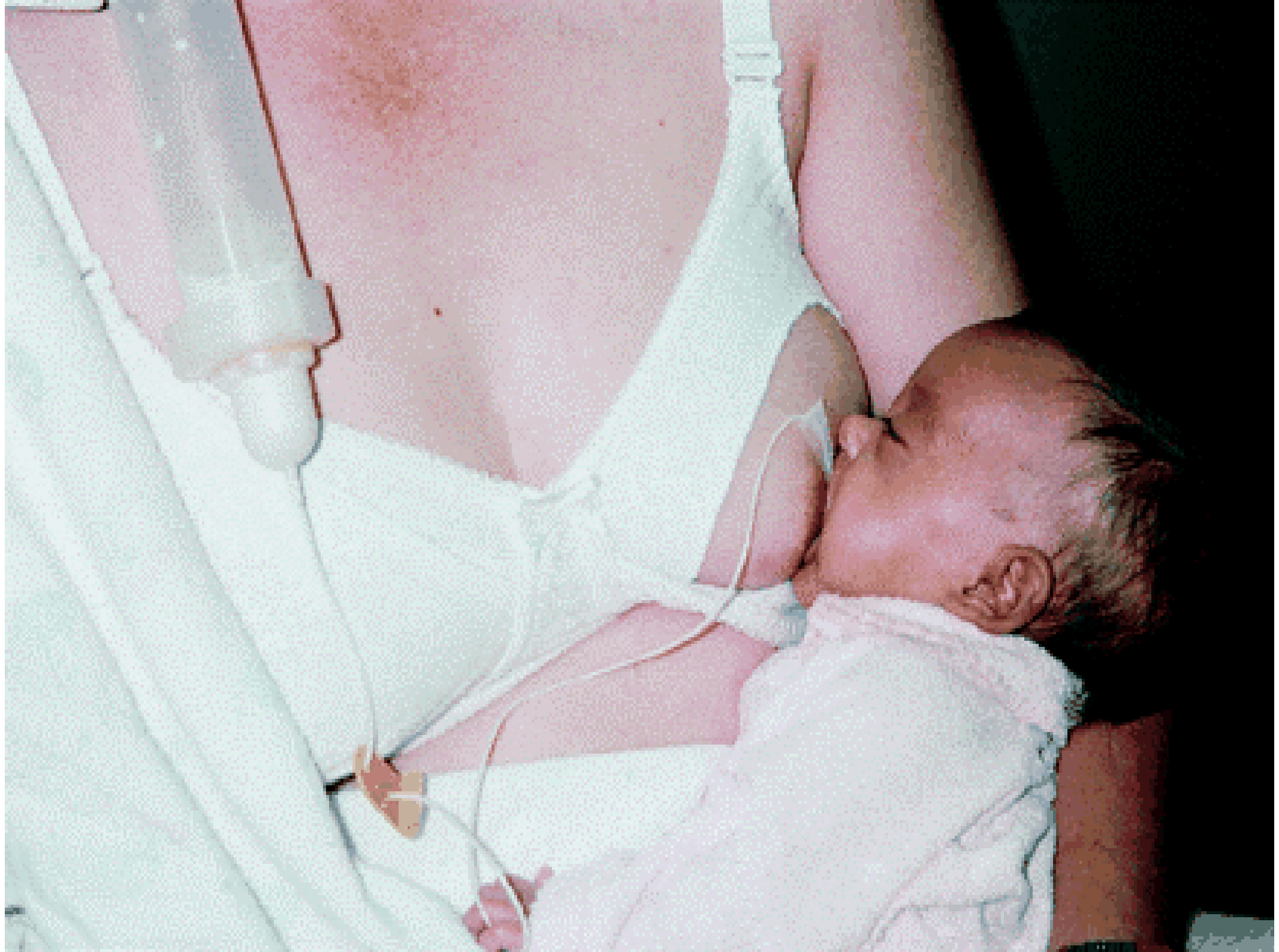
Latching- on





Comparison of human milk cow's milk and infant formula

	breast milk	cow's milk	Infant formula
Energy (kcal)	70	67	60:65
Protein	1.3	3.5	1.5-1.9
CHO.	7	4.9	7-8.6
Casein:whey	40:60	63:37	40:60
Fat	4	3.6	2.6-3.8
Na	0.65	2.3	0.65-1
Ca	0.88	3	0.88-2
Ph	0.46	3.2	0.9-1.8
Fe (umol)	1.3	0.9	8-12.5



Infant Bonding





©

Infant Bonding



Position 4



Position 6







Breast feeding till 1-2 years



Feeding of twins



Advantages to the mother

- Burns more calories and helps you get back to your prepregnancy weight more quickly.
- Reduces the risk of ovarian cancer and, in premenopausal women, breast cancer.
- Builds bone strength to protect against bone fractures in older age.
- Delays the return of your menstrual period, which may help extend the time between pregnancies. (Keep in mind that breastfeeding alone will not prevent pregnancy.)
- Helps the uterus return to its regular size more quickly.

WHO recommendations

- The longer you breastfeed, the greater the benefits will be to your baby and you, and the longer these benefits will last. The World Health Organization (WHO) and many other experts encourage women to breastfeed for as long as possible, 1 year or even longer, because human milk provides the best nutrition and protection against infections.

Signs that baby is getting enough milk are as follows:

- at least six wet diapers per day and two to five loose yellow stools per day, depending on baby's age. (Your baby's stools should be loose and have a yellowish color to them. Be sure your child's stools are not white or clay-colored.)
- steady weight gain, after the first week of age.
- pale yellow urine, not deep yellow or orange.
- sleeping well, yet baby looks alert and healthy when awake

Contraindication To Breast Feeding

Maternal causes:

Infection

Mental&neurologic illness

Others:Eclampsia

Nephritis

Chronic malnutrition

Underdeveloped breast

Severly inverted nipples

Infant causes:

Inborn error of metabolisms

Sever congenital anomaly

FTT

Difficulties in breast feeding

Maternal:

1-poorly developed breast.

2-retracted, sore, cracked, Or fissured nipple.

3-breast milk engorgement.

4-mastitis or abscess.

infant:

1-nasal catarrh.

2-thrush stomatitis.

3-weak suckler.

4-congenital malformation.

Complication of B.F

Vit.k def. lead to hemorrhagic disease of the Newborn R/-1 mg vit.k im.

Breast milk jaundice → LCFA, lipase inhibit
Uptake ↑ glucoronidase activity

Infections transmitted by breast milk

CMV HIV HBV

Adequacy of breast feeding

- Criteria of adequacy of breast-feeding
 - 1- infant calm and satisfied.
 - 2-sleep well.
 - 3-normal stool (*frequent, yellow, acidic and Soft*).
 - 4-normal amount of urine.
 - 5-normal weight gain
 - test weighing
 - test feeding
 - wt.chart

Criteria of underfeeding breast-fed infants

1-irritable baby.

2-stays on breast for long period.

3-very short sleeps.

4-oliguria.

5-hunger diarrhoea.

6-slow gain in weight-static-wt loss

R/ supplementary or complementary feeds.

FORMULA FEEDING

- Whole Cow Milk.
- Indication of formula feeding.
- Problems of unmodified cow's milk : high solute load & low iron.
- Circumstances leading to bottle feeding :
 - 1-substitutive.
 - 2-complementary.
 - 3-supplementary.
- Type of formula feeding.

MILK SUBSTITUTES

Soya based formula :

Used in cow milk intolerance from protein hypersensitivity or lactose intolerance.

Lactose free formulas :

e.g. isomil & AL 110

uses: galactosemia
lactose intolerance.

Protein hydrolysate formulas:

e.g. –pregestimil

uses: CMPI
lactose intolerance.

Technique of artificial feeding

- Mother & infant setting.
- Infant hungry , fully awake , warm and dry.
- Held as though being breast fed.
- Bottle propping discouraged.
- Warming and testing.
- Nipple holes → drop slowly.
- Eructation of air.
- 5 – 25 minutes depending on vigor and age.

M.C.Q

Chose one best answer :

1 – which of the following is present in higher amounts in human milk than in bovine milk ?

A- protein. B- unsaturated F.A c- minerals. D- vitamin k.

2 - which of the following is the major protein in human milk?

A- whey. B- casein. C- lactoglobulin. D- lactoferrin.

3- which of the following is the most efficient source of calories?

A- protein. B- lipid. C- carbohydrate. D- dietary sugar.

4- the major milk carbohydrate, lactose, contains :

A- glucose and fructose. B- fructose and sucrose.
C- galactose and fructose. D- galactose and glucose.

5- the infant breast-fed by a vegan is potentially liable to :

A- rickets. B- scurvy. C- beriberi. D- pellagra.

6- which of the following statements are true ?

A- humanized formula are identical to H.M.

B- H.M is un affected by maternal diet. C- Formula contain more solute.

D- Humanized formula primarily contain bovine casein protein.

7- Initiation of solid foods begin :

A- As soon as possible.

B- At approximately 6 mo.

C- at 1 year.

D- at 18 month.



Thank you