Review Article

Overview of the Updates in Nutrient Profiles, Types, Indications and Side Effects of Infant Formula

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Abstract

All mothers should breastfeed their infants, initiate breastfeeding within the first hour of life and continuing breastfeeding up to 2 years of age or beyond. Some conditions nissisate formula feeding. Because every child has separate needs, there are a variety of infant and pediatric formulas from that to choose. Not only are there several categories of formulas counting milk protein-based, soy protein-based, hydrolyzed protein, and amino acid-based, but there are changes between products within each group. The advent of Internet mediums that facilitate peer-to-peer human milk sharing has resulted in health authorities stating that the allotment of human milk is dangerous. There are risks associated with all forms of infant feeding, including breastfeeding and the use of manufactured infant formulas. Nevertheless, a small number of health conditions of the infant or the mother may justify endorsing that she does not breastfeed provisionally or enduringly. However, Baby formulas rarely cause serious lateral effects. But food allergies, nutrient deficiency, or baby formula contamination can lead to serious fitness problems if left unchecked.

Keywords: Infant formula, Breast milk, Health policy, Wet nursing, Food contamination

Introduction

Almost all mothers can breastfeed successfully, which contains initiating breastfeeding within the first hour of life, breastfeeding solely for the first 6 months, and continuing breastfeeding (along with giving appropriate balancing foods) up to 2 years of age or beyond. Exclusive breastfeeding in the chief six months of life is particularly beneficial for mothers and infants. Positive belongings of breastfeeding on the health of infants and mothers are experiential in all settings.

Breastfeeding reduces the danger of acute infections such as diarrhea, pneumonia, ear infection, *Haemophilus influenza*, meningitis, and urinary area infection [1]. It also protects against chronic circumstances in the future such as type I diabetes, ulcerative colitis, and Crohn's disease. Breastfeeding throughout infancy is associated with lower nasty blood pressure and total serum cholesterol, and with a lower prevalence of sort-2 diabetes, overweight, and obesity during adolescence and adult life [2]. Breastfeeding delays the arrival of a woman's fertility and reduces the dangers of post-partum hemorrhage, pre-menopausal breast cancer, and ovarian cancer [3].

Nevertheless, a small number of health conditions of the infant or the mother may justify recommending that she does not breastfeed provisionally or permanently [4]. These conditions, which worry very few mothers and their infants, are listed below together with some health circumstances of the mother that, although serious, are not medical reasons for using breast-milk substitutes.

Adequate nutrition during infancy and early childhood are vital to ensure children's optimal health, growth, and development [5]. Undernourishment has been responsible, directly or indirectly, for 60% of annual deaths universal, often due to inappropriate feeding practices during the first year of life [6]. Humanoid milk is universally recognized as the "gold standard" for feeding newborns, providing readily bioavailable components and nutrients in a well-balanced supply, confirming optimal growth and development for the child [7, 8]. Breastfeeding offers uncountable benefits to both the mother and infant and its short- and long-term significance has already been scientifically proven. Among these reimbursements, we can mention the supply nutritional requirements and defense against diabetes, the simple

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elimination of meconium, immunological types of machinery that prevent allergies, decreased risk of jaundice, protection of the abdominal flora to avoid diarrhea and protection against infections [9]. protection of the abdominal flora to avoid diarrhea and protection against infections [10, 11]. About the benefits for the mother, breastfeeding after childbirth makes the uterus return to its typical size faster and decreases bleeding, preventing maternal anemia; hurries weight loss; reduces the risk of breast, ovarian, and endometrial cancer; prevents osteoporosis; and defends against cardiovascular illnesses, such as heart attack [12].

Global public health recommends that infants be wholly breastfed for the first six months of life to achieve optimal growth, growth, and health. After this phase, they should receive complementary foods as they linger to be breastfed, at least until the age of two [13]. However, in some circumstances, breastfeeding is not possible or advisable due to issues associated with the mother's health or due to the baby's health. For these cases, intercontinental scientific medical societies recommend that when all strategies for continuing breastfeeding are exhausted, infant milk formulas should be used [14]. Infant formulations used as a complement or a substitute for breast milk are the best other for child development compared to other unprocessed food sources since they can be manipulated to provide adequate nutrition. Infant formulas are foodstuffs from cow's milk and other animals or vegetables or a combination of these [15]. Cow's milk is the primary ingredient most often rummage-sale in the manufacturing of these products. However, infant formula manufacturers pursue to make cow's milk's nutritional characteristics closer to human milk by chemically regulating the macro and micronutrient composition [16]. In addition, human milk delivers not only nutrient components but also potential bioactive compounds that achieve many physiological functions other than nutrition, touching the immune system, hormones and related mixtures, antibacterial agents, enzymes, enzyme inhibitors, and encrypted peptides [17]. Therefore, bioactive compounds are rudiments that "affect biological processes or substrates and hence have an influence on body function or condition and ultimately health" [18]. In human milk, these workings come from various sources; some are produced and concealed in the mammary epithelium, while others are acquired due to motherly nutrition [19]. There are many of these components in human milk; some are not hitherto identified; others, although already identified, do not yet have their physiological belongings wholly understood. Therefore, their presence in infant formulas is not yet a technological reality.

Infant formulas are liquids or reconstituted dust fed to infants and young children to serve as substitutes for human milk. Infant formularies have a special role in the diet because they are the only foundation of nutrients for some infants. In the United States and other industrialized countries, the massive majority of infants receive infant formula at some time throughout their first year of life [20] as the number of infants breastfed afterward birth rapidly decreases. Many infants obtain formula in combination with breastfeeding. During these mixed feeding routines, there are possible interactions between the components of human milk and those controlled in formulas [20].

Although the American College of Pediatrics and the American Academy of Family Physicians recommend breast milk for optimum infant nutrition, many parents still choose formula as an acceptable other. The wide variety of available formulas is confusing to parents and physicians, but formulations can be classified according to three basic criteria: caloric thickness, carbohydrate source, and protein composition. Most infants require a period formula with iron. There is insufficient evidence to endorse supplementation with docosahexaenoic acid or arachidonic acid. Soy formulas are designated for congenital lactase deficiency and galactosemia but are not recommended for colic since of insufficient evidence of benefit. Hypoallergenic formulas with lengthily hydrolyzed protein are effective for the treatment of milk protein allergy and the anticipation of atopic disease in high-risk infants. Antireflux formulas decrease emesis and spewing, but have not been shown to affect growth or expansion [21].

Health consequences differ substantially for mothers and infants who formula-feed, compared with those who breast-feed, smooth in wealthy countries such as the United States. Unfortunately, charges of breastfeeding in the United States continue to fall short of the World Health Organization's commendations that children are breastfed for their first 2 years of life [22]. The American College of Pediatrics and the American Academy of Family Physicians [23] endorse exclusive breastfeeding for the first 6 months of life, continuing at the smallest through the infant's first birthday, and as long thereafter as is commonly desired. In the United States, in 2005, only 74% of the United States newborns were breast-fed at least once after delivery, only 32% were wholly breastfed at 3 months of age, and just 12% were exclusively breastfed at 6 months of age [24]. These charges vary considerably by region, with the highest charges in the Pacific Northwest and the lowest rates in the Southeast. Although some of these differences reflect cultural differences, recent data suggest that variations in a hospital's performance account for a considerable proportion of differences in breastfeeding [25].

Nutritional Requirements and Energy Expenditure for the Infant

The needs of infants regulate the amount of nutrition required to maintain and support adequate growth and optimal health while upholding homeostasis with other nutrients. Nutritional requirements vary in infancy, and growth decorations are closely linked to optimized nutrition. The use of standardized explanations is essential when plotting growth in infancy. Energy outflow for basal metabolic processes, regular physical activities, as well as unexpected amplified energy utilization for pathological conditions, control the infant's caloric intake. A healthy child from birth to 1 year should receive around 100 kcal/kg/day. Newborn caloric requirements are advanced at about 110–135 kcal/kg/day [26].

Of the total energy requirement, a healthy infant exploits about 40-60 kcal/kg/day for basal metabolic rate. Thermoregulation plays an enormous role in early infancy, requiring a significant amount of energy spending. This is even higher in smaller preterm infants with minimal subcutaneous fat stores. Nourishing, digestion, absorption, storage, and elimination also require a vast quantity of energy, often up to 30-50 kcal/kg/day. Preterm and sick infants often necessitate higher amounts of energy to maintain adequate growth. As newborns get older, their energy requirements decrease, with boys requiring additional than girls usually on the explanation of weight [27].

Nutritional needs are objectively distinct collectively using the term 'dietary reference intakes [28]. Estimated average supplies (EAR) refers to the minimum amount of a nutrient that is required to meet the needs of half the populace. Since EAR only covers about half of the population, a 20% higher boundary is used as recommended dietary allowances (RDA). RDA mentions a sufficient amount of average daily dietary intake that meets the nutrient condition for most of the healthy population at a particular stage. Adequate intake (AI) is the adequate range of nutrient intake based on healthy populations in cases with inadequate marks to use EAR or RDA. Tolerable upper intake levels (UL) are the highest stages of nutrient intake that are acceptable without causing adverse properties [28]. In situations requiring close monitoring of infant growth, nutrient requirements can be unhurried using these parameters to maintain an objective log of nutrient consumption during periods of growth irresolute.

Nutrient Profiles for Infant Formula: Macronutrients

Macronutrients include large nutrient molecules that deliver the primary nutritional source of energy and substrate, playing a vital anabolic part in building tissues and in growth. These are broadly gathered into proteins, carbohydrates, and fats.

Proteins

Proteins are building blocks that play a substantial anabolic role in building muscle and tissues. Protein accounts for about 15% of total energy intake. Anatomically, proteins are large molecules comprised of chains of amino acids amalgamated by peptide bonds. They can be classified based on the number of amino acids in the protein chain into dipeptides, oligopeptides, or polypeptides. Multifaceted folding of the longer protein chains into three-dimensional structures additional results in a tertiary modification, adding complexity to the protein construction [29].

Enteral protein intake in neonates is primarily expended as whey or casein proteins. Whey protein has less methionine gratified, while casein has less cysteine content. Mucins are another minor collection of human milk proteins, seen in milk fat globule membranes. Breastmilk is an excellent basis of protein with a whey: casein ratio of 80:20, even up to 90:10 in colostrum. The protein relation changes to 55:45 in mature milk while still retaining the prevalence of whey protein. The bioavailability of protein in breastmilk is higher, secretarial for better protein absorption and retention in breastmilk-fed infants. The protein gratified in formulas is included as a combination of whey and casein with changing ratios in different formulas [29].

Lipids (Fats)

Lipids are a primary source of caloric consumption, primarily in the form of triglycerides, free fatty acids, and cholesterol. Lipids explanation for about 40-50% of total energy intake. The caloric density of lipids is 9 kcal/g. Throughout the fetal period, lipids are transferred transplacentally as fatty acids, slowly increasing in the third trimester. Body fat stores are accumulated near the end of the third trimester, and provide a significant source of energy to the newborn infant. Provisions are decreased in low birth weight and preterm infants. Additional glucose is also transformed into lipids by lipogenesis [30].

Triglycerides account for the bulk of lipids secretarial for up to >90% of all lipid intake, with phospholipids and cholesterol acting as minor bases usually packaged into milk-fat globules. Enterocytes utilize the ingested lipids to harvest lipoproteins rich in triglycerides, known as chylomicrons, that are used for conveying lipids via lymphatics to the target cells [30]. Chylomicrons in cord lifeblood and at one-month-old preterm infants have been shown to have higher cholesterol than in period infants, resulting in a lower chylomicron triglyceride-cholesterol ratio in preterm infants compared to period infants [31]. Triglycerides are broken down by lipases into fatty acids, which can be confidential into essential and non-essential fatty acids.

Essential fatty acids (EFA) include linoleic (LA) and alpha-linolenic acid (ALA), which deliver an essential source of fats. Besides, given the current use of intravenous lipid emulsions, arachidonic acid (ARA) and docosahexaenoic acid (DHA), byproducts of LA, and ALA, respectively, are also considered EFAs. Essential fatty acid shortage (EFAD) can appear as soon as 7-10 days if not receiving adequate lipid consumption. EFAD can be diagnosed biochemically using the triene:tetrene proportion (Holman index) with a value greater than 0.2 suggestive of biochemical EFAD, though symptoms appear >0.4 [32].

Carbohydrates (Energy)

The primary source of carbohydrates for the brain is glucose. Carbohydrates deliver the bulk of calories with 40-55% of daily needs. While carbohydrates are exploited as disaccharides, oligosaccharides, and polysaccharides, lactose methods are the primary enteral source of glucose in human milk and standard infant formula. The volume of carbohydrate requirement is calculated based on the total expected energy requirement taking into account the energy from non-carbohydrate bases. Besides, glucose provides the carbon molecules required for manufacturing fatty acids and amino acids. In parental nutrition, it is often stated as D10W and augmented over days accounting for the glucose infusion rate (GIR). Dextrose delivers 3.4 kcal/g of glucose [29].

Micronutrients and Other Trace Elements

Nutrient elements that are required in minute quantities are painstaking micronutrients or trace elements- with RDA often in micrograms. The greatest common micronutrients are zinc, copper, chromium, manganese, and selenium. Trace rudiments require age, size, and disease-specific adjustments in the pediatric population; therefore, adult references cannot be used. While the absorption of trace elements is tightly regulated in the intestinal tract, supplying trace elements parenterally bypasses this homeostatic barrier foremost to a risk of overload if excessive quantities are provided [33].

Iron: Iron is a basic component of hemoglobin and myoglobin and is henceforth an essential nutrient. The deficiency of iron fallouts in microcytic anemia and FTT. Growing preterm infants require a higher dose of iron to meet the anxieties of catch-up growth and to support increased red blood cell construction from bone marrow proliferation. Breastfed infants may necessitate iron supplementation after 4-6 months of life whereas formula-fed infants do not as child formula is fortified with iron [33].

Zinc: Zinc is a vital cofactor of human enzymes and is carefully essential for growth. Zinc requirements vary with age and clinical condition. Newborns with short bowel syndrome often have increased fluid losses; therefore are at developed risk of zinc deficiency. Premature infants need higher doses of zinc subordinate to their rapid growth. Zinc deficiency can result from congenital or nutritional sources. Congenital abnormality of zinc absorption or transport outcomes in acrodermatitis enteropathica affecting skin, hair, and nails, and patients current with FTT, hair loss, diarrhea, dermatitis, facial rash, and nail hypoplasia. Acquired/ nutritional shortage of zinc is commonly seen in preterm infants on PN, resulting in growth failure, poor wound healing, skin rashes, and iron absence anemia as zinc is a cofactor in iron metabolism [33].

Copper: Copper plays an important role as a cofactor to ended twenty enzymes involved in multiple basic cellular processes connecting cellular respiration, iron metabolism, and production of red blood cells, to name an insufficient. Copper deficiency is rarely seen. The increased requirements, incomplete stores, and potential increased gastrointestinal losses of copper must be stable against the reduced biliary excretion in preterm babies [33]. Iron deficiency is one of the initial signs of copper deficiency and may present through anemia, neutropenia, FTT, etc. Copper is no longer recommended to be held habitually in infants with cholestasis (PNAC) due to the hazard of microcytic anemia.

Chromium: Chromium plays a crucial role in insulin metabolism, thus changing glucose levels. While deficiency of chromium has not been well described in humans, chromium toxicity is well known, especially in newborns and children on long-term PN. Chromium is believed to have renal tubular toxicity with a condensed glomerular filtration rate. Given the wide variability in the pollution of chromium with different PN formulations, the actual intake is often unclear. It is thus suggested to decrease the dose of chromium in children with renal failure, but not eliminate it [33].

Manganese: Manganese is an important trace element with person in enzyme activation and function of multiple enzymes, plus metalloenzymes with manganese incorporated into the enzymatic molecular structure, most particularly, superoxide dismutase enzyme. However, due to its wide availability in the countryside, deficiency of manganese is rare. Though, the neurotoxicity and hepatic toxicity of manganese are well described. In preterm infants on long-term PN, and especially persons with PNAC, the risk of accumulation and, thus, toxicity is significantly advanced since manganese is primarily excreted via the liver. Thus manganese is no lengthier added as a trace element as it can be neurotoxic in large amounts, and it is sufficient in the PN additives [34].

Selenium: Selenium is an antioxidant related to reductions in a wide range of pathological conditions in infants, especially preterm newborns on PN, including bronchopulmonary dysplasia/chronic lung sickness, necrotizing enterocolitis, retinopathy of prematurity, periventricular leukomalacia and sepsis. As a cofactor for glutathione peroxidase enzyme, selenium theaters a role in reducing free radicals, thus decreasing cellular level injury across various tissue systems. Due to predominantly renal excretion, caution is optional in infants with renal dysfunction [35].

Vitamins: Preterm infants are disposed to vitamin deficiencies due to lower stores, increase requirements, and immature metabolic processes. The conflict is also true that these preterm infants are at higher risk for toxicity due to undeveloped and compromised renal function. Fat-soluble vitamins comprise vitamins A, D, E, and K. Vitamin A (Retinol) is known to play an essential role in the growing and development of skin, eyes, bones, and pulmonary epithelium. It is thus occupied in chronic lung disease, photophobia, abnormal epiphyseal bone evolution, and FTT. Vitamin E (tocopherol) has an antioxidant character in iron-induced hemolysis. Vitamin K plays a vital role in thickening through carboxylation of prothrombin into its active form, thus essential in preventing hemorrhagic sickness of the newborn. Vitamin D plays a crucial role in calcium and phosphorus metabolism in combination with parathyroid hormone.

Vitamin D deficiency is allied with rickets, osteopenia of prematurity, and letdown to thrive. Water-soluble vitamins B and C, on the other hand, require daily intake to meet their foods [36].

Types of the Formula [37]

First Infant Formula (First Milk): Appropriate from Birth: First infant formula (first milk) should always be the first formula you bounce to your baby. The cows' milk in formula contains 2 types of proteins – whey and casein. The first infant formulary is based on whey protein which is thought to be easier to digest than extra types of formula.

Goats' Milk Formula: Suitable from Birth: Different classes of goats' milk formula are available in pharmacies and shops. They are produced to the identical nutritional standards as cow's milk-based formula. Goats' milk formula is not less possible to cause allergies in babies than cows' milk formula. Goats' milk formulations are not suitable for infants with cows' milk protein aversion (allergy), as the proteins they contain are similar.

Hungrier Baby Formula (Hungry Milk): Suitable from birth (but ask a midwife or health visitor for information first). This type of formula covers more casein than whey, and casein is harder for babies to digest. Although it's frequently described as suitable for "hungrier babies", there's no evidence that babies settle improved or sleep longer when fed this type of formulation.

Anti-Reflux (Stay-Down) Formula: Suitable from birth (but only below medical supervision). This type of formulation is thickened to prevent reflux in infants (when babies bring up milk during or after food).

Although it's available in pharmacies and supermarkets, it's optional you only use it on the advice of a health specialist.

Comfort Formula: Suitable from birth (but request a midwife or health visitor for advice first). This type of formula contains cows' milk proteins that obligate have already been partly broken down (partially hydrolyzed). This is theoretical to make it easier to digest and help prevent digestive difficulties such as colic and constipation. However, there's no indication for this.

Lactose-Free Formula: Suitable from birth (but only below medical supervision).

This formula is suitable for babies who are lactose intolerant. These incomes cannot absorb lactose, which is a sugar that's obviously in milk and dairy products. Lactose intolerance is rare in darlings. Symptoms include diarrhea, abdominal pain, wind, and expansion.

Hypoallergenic Formula: Suitable from birth (but only under medical management).

If your baby is diagnosed as being allergic to cows' milk, a GP will recommend an appropriate infant formulation with fully hydrolyzed (broken down) proteins.

Formula with partially hydrolyzed proteins (comfort formula) is obtainable in pharmacies and shops, but it's not suitable for offspring with cows' milk allergies.

Follow-On Formula: Suitable from 6 months (but ask a comforting visitor for advice first). Follow-on formula should never be fed to babies under 6 months long-standing. Research shows that switching to follow-on formulation at 6 months has no benefits for your baby. Your baby can continue to need first infant formula as their chief drink until they are 1 year old.

The labels on follow-on formula can look very comparable to those on first infant formula. Read the label carefully to avoid manufacturing a mistake.

Good Night Milk: Suitable from 6 months (but ask a health guest for advice first).

Some follow-on formula has cereal added to it and is sold as an unusual formula for babies to have at bedtime. This type of formulation is not needed, and there's no evidence that babies settle better or sleep longer afterward having it. Good night formula should never be given to babies over 6 months old.

Soya Formula: Suitable from 6 months (but only under medical administration). Soya formula is made from soya beans, not cows' milk. It's sporadically used as an alternative to cows' milk formula for babies who need cows' milk allergies.

There are some concerns about the detail that soya contains phytoestrogens. These are found naturally in some plants. The chemical construction of phytoestrogens is similar to the female hormone estrogen. Because of this, there are anxieties that they could affect a baby's reproductive development, particularly in babies who drink only soya-based infant formulations.

Growing-Up Milk (Toddler Milk): Suitable from 1 year (but ask a health caller for advice first).

Growing-up and toddler milk are marketed as a substitute for whole cows' milk for toddlers and children over 1-year-old. There's no indication to suggest that these products provide extra nutritional assistance for young children.

Indications for Using Milk Formula in Infants [38]

- *Infants Who Should Not Receive Breast Milk or Any Other Milk Except for Specialized Formula*
  1. Infants with classic galactosemia: a special galactose-free formulation is needed.
  2. Infants with maple syrup urine disease: a special formulation free of leucine, isoleucine and valine are wanted.
  3. Infants with phenylketonuria: a special phenylalanine-free formula is desirable (some breastfeeding is possible, under cautious monitoring).

- *Infants for Whom Breast Milk Remains the Best Nursing Option but Who May Need Other Food in Addition to Breast Milk for an Imperfect Period*
  1. Infants born weighing less than 1500 g (very low birth weight).
  2. Infants born at less than 32 weeks of gestational age (very pre-term).
  3. Newborn infants who are at risk of hypoglycemia by the feature of impaired metabolic adaptation or enlarged glucose demand (such as those who are preterm, unimportant for gestational age, or who have experienced noteworthy intrapartum hypoxic/ischaemic stress, those who are ill and persons whose mothers are diabetic) [5] if their blood sugar nose-dives to respond to optimal breastfeeding or breast-milk nourishing

- *Maternal Conditions That May Justify Permanent Avoidance of Breastfeeding*
  1. HIV infection1: if replacement nourishing is acceptable, feasible, affordable, sustainable, and safe (AFASS) [6].

- *Maternal Conditions That May Justify Temporary Escaping from Breastfeeding:*
  1. Severe illness that prevents a mother from caring for her infant, for example, sepsis.
  2. Herpes simplex virus type 1 (HSV-1): direct connection between lesions on the mother's breasts and the newborn's mouth should be avoided until all active lesions need to be resolved.
  3. Maternal medication:
     - sedating psychotherapeutic drugs, anti-epileptic treatments, and opioids and their combinations may cause side belongings such as drowsiness and respiratory depression and are better avoided if a safer other is available (7);
     - radioactive iodine-131 is better avoided given that safer substitutes are available - a mother can resume breastfeeding about two months after receiving this material; - excessive use of topical iodine or iodophors (e.g., povidone-iodine), particularly on open wounds or mucous membranes, can result in thyroid conquest or electrolyte abnormalities in the breastfed infant and should be evaded; - cytotoxic chemotherapy requires that a mother stops breastfeeding throughout therapy [39].

The Risks of Formula-Feeding

For many years, public health campaigns and the medicinal literature have described the 'benefits of breastfeeding,' comparing health consequences among breast-fed infants against a reference collection of formula-fed infants. Although statistically synonymous with reporting the 'risk of not breastfeeding,' this method implicitly defines infant formula as the normal way to feed a newborn. This subtle distinction substantially affects perceptions of infant feeding [40]. If 'breast is best,' before the formula is implicitly 'good' or 'normal.' This distinction was underlined by a national survey showing that, in 2003, while 74% of the United States inhabitants disagreed with the statement, 'Infant formula is as upright as breast milk,' just 24% agreed with the statement, 'Feeding a baby formula in its place of breast milk increases the chance the baby will become sick [41]. These distinctions look to influence feeding decisions. In 2002, the Ad Council conducted focus clusters to develop the National Breastfeeding Awareness Campaign, beleaguered at reproductive-aged women who would not normally breastfeed. They originate that women who were advised about the 'benefits of breastfeeding' observed lactation as optional, like a multivitamin, that was helpful but not indispensable for infant health. In contrast, when the same data were accessible as the 'risk of not breastfeeding,' women were far more likely to roughly that they would breastfeed their infants. Formula feeding has risks that are not allied with feeding human milk to infants. It is presumably these risks that mothers using peer-to-peer shared human milk wish to avoid [41].

Formula feeding is associated with amplified risk of infectious diseases counting gastrointestinal disease and respiratory tract infections. In resource-rich countries, children who are fed infant formula are up to five periods more likely to be hospitalized in infancy than children who are fully breastfed [42]. Some of the instruments by which formula feeding might facilitate infection are understood; for example, digestion of foreign protein such as dairy protein in infant formula can inflame and injure the protective mucous membrane of the intestine through supplementary colonization by pathogens [43]. The use of infant formula is also associated with an increased risk of non-infectious illnesses such as allergic diseases and type 1 and 2 diabetes.[44] Again, early contact with "foreign" foods is thought to be a factor in the development of these illnesses.[45]. In addition, formula feeding is associated with impaired cognitive development, perhaps since infant formula lacks many ingredients thought to be involved in brain expansion[46]. Finally, formula feeding is associated with an increased risk of death due to Unexpected Infant Death Syndrome (SIDS) which is 3.7 times that of breastfed babies,[47] and a peptide in the dairy formulation has been identified as a conceivable contributor to SIDS [47].

Serious Baby Formula Side Effects

Baby formulas rarely cause serious lateral effects. But food allergies, nutrient deficiency, or baby formula contamination can lead to serious fitness problems if left unchecked. Premature babies may also develop a serious disorder called necrotizing enterocolitis (NEC) when drinking cow's milk baby formulations such as Enfamil or Similac. NEC affects about one in 1,000 infants born prematurely, rendering to Cleveland Clinic. The risk is highest in babies who weigh fewer than two pounds at birth. Life-threatening food allergy symptoms such as bulge of the mouth or throat, hives, and vomiting are a medical emergency. These can happen inside days to weeks after starting cow's milk baby formulation. Babies may also be allergic to soy protein formula. Seek emergency medical courtesy right away [48].

Conclusion

Health establishments have warned parents against peer-to-peer milk sharing networks stating that sharing breast milk is risky. However, analogous and additional risks exist for using infant formula. Historical and cultural motives underlie the distaste for the sharing of human milk that is imitated in this condemnation of milk sharing. Instead of proscribing peer-to-peer milk distribution, health authorities should provide parents with guidance on how to accomplish and minimize the risks of the distribution of human milk.

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