



Appendix

Section 5

Appendices

Appendix 1

Components in breast milk and infant formula milks

Components		Role in breast milk	Infant formulas - suitable from birth
Protein	Whey & Casein	Main proteins in breast milk. The ratio of whey to casein is 40:60	Present in whey dominant formula in the ratio 60:40 Present in casein dominant formula in ratio 20:80
	Alpha-lactalbumin	Main component of whey protein	Added to some infant formulas
	Beta lactalbumin	Very small proportion of the whey protein	Main component of whey protein in other formula milks
	Lactoferrin	Help babies to absorb nutrients in breast milk. Lactoferrin is an iron binding protein. It binds the iron rendering it unavailable to pathogenic gut bacteria. Bacterial growth is thereby inhibited reducing the risk of gastro-intestinal infections	Not present
	Immunoglobulins (anti-infective proteins)	Remain relatively constant throughout lactation regardless of the amount of breast milk provided by the mother. This happens because the concentration increases as total volume reduces	Not present
	Taurine	An amino acid essential for the myelination of the central nervous system and brain. In newborns, bile acids are almost exclusively conjugated with taurine, which helps excretion	Present

Components		Role in breast milk	Infant formulas - suitable from birth
Fats	Total fat	Provides about 50% of the energy content of breast milk	Present at same level
	Long Chain Polyunsaturated fatty acids: DHA & AA (Docosahexanoic acid & Aricadonic Acid)	Long chain polyunsaturated fatty acids that are important in brain and retina development and in myelinization of the nervous system	Present in all except organic formulas
Carbohydrate	Lactose	The sugar in breastmilk and is about 7% by weight. Is digested to the monosaccharides galactose and glucose	Present at same level
Growth factors		These are especially high in the breast milk of mothers who give birth prematurely, e.g. epidermal growth factor is a polypeptide, which stimulates the proliferation of epidermal and epithelial tissues in the gut lining	Not present
Interferon		Anti-viral factor present in breast milk	Not present
Nucleotides		Essential precursors for DNA and RNA and are important for the function of cell membranes and the normal development of the brain. They may act as co-factors for the growth of Lactobacillus bifidus bacterium which reduce the presence of pathogens, such as Escherichia Coli, in the faecal flora	Present in some
Lysozyme		Has a role in the antibacterial activity of breastmilk and is also responsible for the development of intestinal flora	Not present
Iron		Because of Lactoferrin babies up to 6 months can get all the iron they need from breast milk	Added in higher amounts as there is only about 10% absorption from infant formula. The excess iron remaining in the gut encourages bacterial growth
Living white blood cells		Are the body's defence against infection. These are made in response to any infection that the mother is exposed to	Not present
Vitamin D		Naturally low as the main source of vitamin D is from skin synthesis when outside. It is recommended breastfeeding mothers take a supplement (see page 36)	Added in higher amounts as a supplement
Carnitine		Essential for the catabolism of long-chain fatty acids. It enables fatty acids and ketone bodies to be oxidised to provide alternative fuels to glucose. This helps prevent neonatal hypoglycaemia	Present
Prebiotics		Types of fibre that remain undigested in the gut and they promote the growth of bacteria (e.g. bifidobacteria) in the gut flora that have a positive effect on digestion and absorption	Galacto-oligosaccharides and fructosaccharides are added to some formulas

Appendix 2

Food-related customs

	Jewish	Sikh	Muslim	Hindu	Buddhist	Rastafarian
Eggs	No bloodspots	Yes	Yes	It varies	It varies	It varies
Milk/ Yoghurt	Not with meat	Yes	Yes	Yes	Yes	It varies
Cheese	Not with meat	Yes	It varies	Yes	Yes	It varies
Chicken	Kosher	It varies	Halal	It varies	No	It varies
Lamb/ Mutton	Kosher	It varies	Halal	It varies	No	It varies
Beef	Kosher	No	Halal	No	No	It varies
Pork	No	Rarely	No	Rarely	No	No
Fish	With scales, fins and back bone	It varies	It varies	With fins and scales	It varies	Yes
Shellfish	No	It varies	It varies	It varies	No	No
Butter/ Ghee	Kosher	Yes	Yes	Yes	No	It varies
Lard	No	No	No	No	No	No
Cereal Foods	Yes	Yes	Yes	Yes	Yes	Yes
Nuts/ Pulses	Yes	Yes	Yes	Yes	Yes	Yes
Fruit/ Vegetables	Yes	Yes	Yes	Yes	Yes	Yes
Fasting	Yes	Yes	Yes	Yes	Yes	Yes

Strict Hindus and Sikhs will not eat eggs, meat, fish and some fats.

Some Rastafarians are vegan.

Jains have restrictions on some vegetable foods – check with individual.

Fasting is unlikely to apply to young children

(Eating well under 5s in Childcare Training Materials, Caroline Walker Trust).

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