

Australia's First

Day and Night Infant Formula

0-6 months



Age of Child	Quantity per feed			
	Cooled, boiled water (mL)	Level measuring scoops	Feeds between 5am - 5pm	Feeds between 5pm - 5am
Up to 2 weeks	60	1	3-4	3-4
2 weeks - 2 months	120	2	3	3
2 - 4 months	180	3	2-3	2-3
4 - 6 months	240	4	2-3	2-3

HAPPi Day and Night formulations have been developed based on the scientific evidence that daily circadian fluctuations exist for nutritional components within human and cow's milks.^{1,2}

Milk during the day is characterised by higher levels of cortisol and activity-promoting amino acids during the day, which likely function to promote alertness, feeding behaviour, and catabolic processes in infants. Night Milk is marked by lower levels of these activity-promoting compounds, and provides increased levels of melatonin and tryptophan to foster sleep, relax digestion, and support cell restoration.¹⁰

There are several reasons why nutritional variation exists between day and night milk including maternal diet, as well as basic physiological variation. However, there is evidence to support the view that some of the variation is more structured and is designed to provide an advantage to infants.

HAPPi Day and Night formulas are nutritionally optimised to reflect an infant's nutritional needs are different between day and night.

IMPORTANT NOTICE: Breast milk is best for babies. Before use, please consider if this is product is right for your customer/patient/client, recommendations may have financial and social implications. **WARNING:** Follow instructions exactly. Prepare bottles and teats as directed. Do not change proportions of powder except on medical advice. Incorrect preparation can make your baby very ill. Infants over 6 months should be offered solid food in addition to this product. This resource has been developed for the use of healthcare professionals. It should not be construed as professional medical advice.

REFERENCES: 1. Italianer, M.F et al. Circadian Variation in Human Milk Composition, a Systematic Review. *Nutrients* 2020, 12, 2328. 2. Z.W. Teng et al. Effects of the circadian rhythm on milk composition in dairy cows: Does day milk differ from night milk?, *Journal of Dairy Science*, Volume 104, Issue 7, 8301-8313, (2021). 3. Gabriel Manjarrez, PhD* et al. Free Tryptophan as an Indicator of Brain Serotonin Synthesis in Infants *PEDIATRIC NEUROLOGY* Vol. 18 No. 1 1988 4. Sara Aparicio, Celia Garau, Susana Esteban, María C. Nicolau, Montserrat Rivero & Rubén V. Rial (2007) Chrononutrition: Use of dissociated day/night infant milk formulas to improve the development of the wake-sleep rhythms. *Effects of tryptophan, Nutritional Neuroscience*, 10:3-4, 137-143 5. Manja Fleddermann, et al. Role of selected amino acids on plasma IGF-I concentration in infants *Eur J Nutr* (2017) 56:613-620 6. Sánchez CL, Cubero J, Sánchez J, Chanclón B, Rivero M, Rodríguez A, et al. The possible role of human milk nucleotides as sleep inducers. *Nutr Neurosci*. 2009;12:2 - 8. 7. Sánchez, C.L. Human milk nucleotides improve sleep: A focus on circadian profiles. In *Handbook of Nutrition, Diet and Sleep*; Wageningen Academic Publishers: Wageningen, The Netherlands, 2013. 8. Picciano MF, Guthrie HA. Copper, iron, and zinc contents of mature human milk. *Am J Clin Nutr*. 1976 Mar;29(3):242-54. 9. Yao M, Lien EL, Capeding MR, Fitzgerald M, Ramanujam K, Yuhas R, Northington R, Lebumfacil J, Wang L, DeRusso PA. Effects of term infant formulas containing high sn-2 palmitate with and without oligofructose on stool composition, stool characteristics, and bifidogenicity. *J Pediatr Gastroenterol Nutr*. 2014 Oct;59(4):440-8. 10. Hahn-Holbrook J, Saxbe D, Bixby C, Steele C, Glynn L. Human milk as "chrononutrition": implications for child health and development. *Pediatr Res*. 2019 Jun;85(7):936-942. doi: 10.1038/s41390-019-0368-x. Epub 2019 Mar 11. PMID: 30858473.



Always wash hands before preparing formula. Wash and rinse bottle and all utensils thoroughly. Use only the enclosed scoop.



Boil fresh potable water and allow to cool until lukewarm.



Consult the feeding table. Pour the exact amount of warm, previously boiled water into sterilised bottle.



Fill the measuring scoop with formula powder and level off using the inner rim of the can.



Always add 1 level scoop (8.8g of powder) for each 60ml of water in the feeding table. Place cap on bottle. Shake or swirl until powder dissolves. If required, cool the prepared formula by holding the bottle under cold running water.



Before feeding, make sure the prepared formula is at the right temperature by testing on your wrist. If prepared formula is not consumed immediately, store refrigerated and use within 24 hours.

Both formulas are nutritionally complete and contain dual prebiotics FOS and GOS and a source of SN2-Palmitate (OPO) to support softer stools.⁹ Day and Night products meet the Food Standards of Australia and New Zealand.

Tryptophan: Greater Levels In Night Milk

In the newborn, tryptophan and its metabolites are essential to brain maturation and to the development of neurobehavioral regulations of food intake, satiation and sleep-wake-rhythm. A blood-brain transfer of tryptophan occurs as a precursor of its metabolite's serotonin and melatonin.³ Like melatonin, tryptophan levels rise and fall according to a circadian rhythm, with concentrations peaking at night.¹ The use of tryptophan in dissociated day/night infant milk formulas has been shown to support and improve infantile development of sleep/wake rhythms.⁴

Iron: Greater Levels In Night Milk

The dietary iron requirement for newborns, infants and during early childhood is high. Iron is an essential nutrient involved in the production of new red blood cells and is crucial for brain development and cognitive function.

Iron consistently shows circadian variation in concentration with the peak of the rhythm occurring during the evening.^{1,8}

Nucleotides: Day And Night Oscillations

Nucleotides are found in human milk and display notable circadian oscillations. 5'CMP, and 5'IMP peak during daylight hours while research shows concentrations of two nucleotides, 5'UMP, 5'AMP are highest in human milk during the night and thought to be associated with its sleep promoting action. While 5'UMP did not show a clear circadian rhythm, there was an increase in its levels at night.

Nucleotides are necessary for DNA and participate in cellular signalling and metabolic processes within cells. Several clinical studies have reported beneficial effects of nucleotide supplementation on gut microflora, diarrhoea and immune function.^{6,7}

Indications: Healthy infants from birth as a partial or complete breast milk substitute.

Contradictions: Confirmed cow's milk protein allergy, soy allergy, galactosaemia, lactose intolerance.

Nutrition Information

Average quantity per 100 mL of Prepared Formula

	HAPPi Day	HAPPi Night
Energy	284 kJ	284 kJ
Protein	1.53 g	1.53 g
- Whey	0.94 g	0.94 g
Fat - Total	3.72 g	3.72 g
- Omega-3	78.5 mg	78.5 mg
α-Linolenic Acid (ALA)	70.5 mg	78.5 mg
Docosahexaenoic Acid (DHA)	7.98 mg	7.98 mg
- Omega-6	567 mg	567 mg
Linoleic Acid	559 mg	559 mg
Arachidonic Acid	7.98 mg	7.98 mg
Carbohydrate	6.84 g	6.84 g
Vitamins		
Vitamin A	66.5 ug RE	66.5 ug RE
Vitamin B6	49.8 ug	49.8 ug
Vitamin B12	0.27 ug	0.27 ug
Vitamin C	9.98 mg	9.98 mg
Vitamin D3	0.94 ug	0.94 ug
Vitamin E	1.33 mg αTE	1.33 mg αT
Vitamin K	5.32 ug	5.32 ug
Biotin	2.26 ug	2.26 ug
Niacin	478 ug	478 ug
Folate	13.3 ug	13.3 ug
Pantothenic Acid	385 ug	385 ug
Riboflavin	166 ug	166 ug
Thiamin	66.5 ug	66.5 ug
Minerals		
Calcium	50.5 mg	50.5 mg
Copper	53.2 ug	53.2 ug
Iodine	8.00 ug	8.00 ug
Iron	0.73 mg	0.82 mg
Magnesium	5.59 mg	5.59 mg
Manganese	6.65 ug	6.65 ug
Phosphorus	30.6 mg	30.6 mg
Selenium	1.60 ug	1.60 ug
Zinc	0.56 mg	0.56 mg
Chloride	46.6 mg	46.6 mg
Potassium	73.2 mg	73.2 mg
Sodium	22.6 mg	22.6 mg
Additional Nutrients		
Lutein	12.0 ug	12.0 ug
Choline	13.3 mg	13.3 mg
Inositol	3.99 mg	3.99 mg
Prebiotic		
- Galacto-oligosaccharide (GOS)	395 mg	395 mg
- Fructo-oligosaccharide (FOS)	132 mg	132 mg
Nucleotides		
- Cytidine 5'-monophosphate (CMP)	0.68 mg	-
- Inosine 5'-monophosphate (IMP)	0.36 mg	-
- Uridine 5'-monophosphate (UMP)	-	0.74 mg
- Adenosine 5'-monophosphate (AMP)	-	0.60 mg
- Guanosine 5'-monophosphate (GMP)	-	0.32 mg
Tryptophan	25.1 mg [^]	30.6 mg

[^]Naturally Occurring Amount

DAY INFANT FORMULA INGREDIENTS: Milk Solids (Deminerilised Whey Powder, Organic Milk (17.6%), Whey Protein Concentrate), Vegetable Oil Blend, Galacto- oligosaccharide (GOS), Lactose, Fructo-oligosaccharide (FOS), Docosahexaenoic Acid Oil (DHA), Arachidonic Acid Oil (ARA), Emulsifiers (Soy Lecithin, Mono- and Di-glycerides), Taurine, Nucleotides (5'-CMP, di Sodium 5'-IMP), Antioxidants (Mixed Tocopherols Concentrate, Ascorbyl Palmitate) Inositol, Lutein. Minerals: [Potassium Chloride, Calcium Carbonate, di Sodium Phosphate, Magnesium Sulphate, Ferric Pyrophosphate, Zinc Sulphate, tri Calcium Phosphate, Copper Sulphate, Manganese Sulphate, Potassium Iodide, Sodium Selenite]. Vitamins: [L-Sodium Ascorbate (Vitamin C), d-alpha Tocopheryl Acetate (Vitamin E), Retinyl Acetate (Vitamin A), Nicotinamide (Vitamin B3), Calcium Pantothenate (Vitamin B5), Colecalciferol (Vitamin D), Thiamin Hydrochloride (Vitamin B1), Riboflavin (Vitamin B2), Pyridoxine Hydrochloride (Vitamin B6), Folic Acid (Vitamin B9), Phytonadione (Vitamin K1), D-Biotin, Cyanocobalamin (Vitamin B12)].

NIGHT INFANT FORMULA INGREDIENTS: Milk Solids (Deminerilised Whey Powder, Organic Milk (17.6%), Whey Protein Concentrate), Vegetable Oil Blend, Galacto- oligosaccharide (GOS), Lactose, Fructo-oligosaccharide (FOS), Docosahexaenoic Acid Oil (DHA), Arachidonic Acid Oil (ARA), Emulsifiers (Soy Lecithin, Mono- and Di-glycerides), Tryptophan, Taurine, Nucleotides (di Sodium 5'-UMP, 5'-AMP, di Sodium 5'-GMP), Antioxidants (Mixed Tocopherols Concentrate, Ascorbyl Palmitate) Inositol, Lutein. Minerals: [Potassium Chloride, Calcium Carbonate, di Sodium Phosphate, Magnesium Sulphate, Ferric Pyrophosphate, Zinc Sulphate, tri Calcium Phosphate, Copper Sulphate, Manganese Sulphate, Potassium Iodide, Sodium Selenite]. Vitamins: [L-Sodium Ascorbate (Vitamin C), d-alpha Tocopheryl Acetate (Vitamin E), Retinyl Acetate (Vitamin A), Nicotinamide (Vitamin B3), Calcium Pantothenate (Vitamin B5), Colecalciferol (Vitamin D), Thiamin Hydrochloride (Vitamin B1), Riboflavin (Vitamin B2), Pyridoxine Hydrochloride (Vitamin B6), Folic Acid (Vitamin B9), Phytonadione (Vitamin K1), D-Biotin, Cyanocobalamin (Vitamin B12)].

Availability: Selected Chemist Warehouse stores, Pharmacies and online at happihealth.com.au