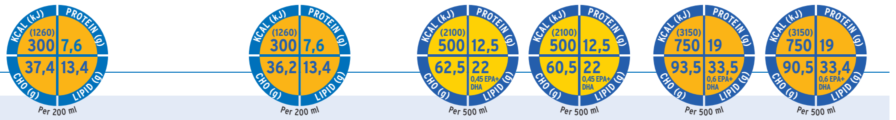
Frebini Energy/Energy Fibre DRINK
Frebini Original/Original Fibre, **Frebini** Energy/Energy Fibre

Nutritional Information



Average content		**Frebini Energy DRINK** Banana, Strawberry		**Frebini Energy Fibre DRINK** Vanilla[a], Chocolate[b]		**Frebini Original[c]/Original Fibre[d]**	**Frebini Energy[e]/Energy Fibre[f]**
		100 ml	**bottle=200 ml**	**100 ml**	**bottle=200 ml**	**100 ml**	**100 ml**
Energy value	kJ	630	1260	630	1260	420	630
	(= kcal)	(150)	(300)	(150)	(300)	(100)	(150)
Fat	g	6.7	13.4	6.7	13.4	4.4[c]/4.45[d]	6.7
of which saturated fatty acids	g	1.7	3.4	1.7[a]/1.8[b]	3.4[a]/3.6[b]	1.2	1.8
of which MCT	g	1.3	2.6	1.3	2.6	0.9	1.3
of which monounsaturated fatty acids	g	3.3	6.6	3.3[a]/3.2[b]	6.6[a]/6.4[b]	2.1	3.2
of which polyunsaturated fatty acids	g	1.7	3.4	1.7[a]/1.6[b]	3.4[a]/3.2[b]	1.2[c]/1.15[d]	1.7
of which EPA + DHA	g					0.09	0.12
Carbohydrate	g	18.7	37.4	18.1	36.2	12.5[c]/12.1[d]	18.7[e]/18.1[f]
of which sugars	g	4.5	9.0	4.5[a]/4.9[b]	9.0[a]/9.8[b]	0.9	2.5
of which lactose	g	≤ 0.05	≤ 0.1	≤ 0.05	≤ 0.1	≤ 0.03	≤ 0.05
Fibre	g	0	0	1.1	2.2	0[c]/0.8[d]	0[e]/1.1[f]
Protein	g	3.8	7.6	3.8	7.6	2.5	3.8
Salt (Na x 2.5)	g	0.20	0.4	0.20[a]/0.26[b]	0.4[a]/0.52[b]	0.14	0.22
Water	ml	79	158	79	158	84	79
Osmolarity	mosmol/l	400	400	400[a]/420[b]	400[a]/420[b]	220	345
Osmolality	mosmol/kg H_2O	500	500	500[a]/530[b]	500[a]/530[b]	250	440
Minerals and trace elements							
Sodium	mg	81	162	81[a]/102[b]	162[a]/204[b]	54	86
Potassium	mg	150	300	150	300	100	150
Chloride	mg	123	246	123[a]/110[b]	246[a]/220[b]	82	123
Calcium	mg	105	210	105[a]/98[b]	210[a]/196[b]	70	105
Magnesium	mg	19	38	19[a]/20[b]	38[a]/40[b]	12.5	17.5
Phosphorus	mg	92	184	92[a]/97[b]	184[a]/194[b]	61	92
Iron	mg	1.5	3.0	1.5	3.0	1.0	1.5
Zinc	mg	1.5	3.0	1.5	3.0	1.0	1.5
Copper	µg	150	300	150	300	100	150
Manganese	mg	0.18	0.36	0.18	0.36	0.12	0.18
Iodine	µg	15	30	15	30	10	15
Fluoride	mg	0.12	0.24	0.12	0.24	0.08	0.12
Chromium	µg	6.0	12	6.0[a]/9.0[b]	12[a]/18[b]	4.0	6.0
Molybdenum	µg	6.0	12	6.0	12	4.0	6.0
Selenium	µg	4.5	9.0	4.5	9.0	3.0	4.5
Vitamins and other nutrients¤							
Vitamin A	µg RE*	68	136	68	136	45	68
β-Carotene	µg	150	300	150	300	100	150
Vitamin D_3	µg	1.13	2.26	1.13	2.26	0.75	1.13
Vitamin E	mg α-TE**	3.0	6.0	3.0	6.0	2.0	3.0
Vitamin K_1	µg	6.0	12	6.0	12	4.0	6.0
Vitamin B_1	mg	0.3	0.6	0.3	0.6	0.2	0.3
Vitamin B_2	mg	0.3	0.6	0.3	0.6	0.2	0.3
Niacin	mg NE***	1.8	3.6	1.8	3.6	1.2	1.8
Vitamin B_6	mg	0.17	0.34	0.17	0.34	0.11	0.17
Vitamin B_{12}	µg	0.3	0.6	0.3	0.6	0.2	0.3
Pantothenic acid	mg	0.6	1.2	0.6	1.2	0.4	0.6
Biotin	µg	7.5	15	7.5	15	5.0	7.5
Folic acid	µg	33	66	33	66	22	33
Vitamin C	mg	12	24	12	24	8.0	12
Choline¤	mg	30	60	30	60	20	30
Myo-Inositol¤	mg	22.5	45	22.5	45	15	22.5
Carnitine¤	mg	4.5	9.0	4.5	9.0	3.0	4.5
Taurine¤	mg	12	24	12	24	8.0	12

Caloric distribution (energy %): Frebini Energy Drink: Fat 40, carbohydrate 49.8, fibre 0, protein 10.2; Frebini Energy Fibre Drink: Fat 40, carbohydrate 48.3, fibre 1.5, protein 10.2 Frebini Original[c]/Original Fibre[d]: Fat 40, carbohydrate 50[c]/48.5[d], fibre 0[c]/1.5[d], protein 10; Frebini Energy[e]/Energy Fibre[f]: Fat 40, carbohydrate 49.8[e]/48.3[f], fibre 0[e]/1.5[f], protein 10.2 Free from gluten and carrageenan. Clinically free from lactose and purine. Low in cholesterol and sodium.

*RE: Retinol equivalents; **α-TE: Tocopherol equivalents; ***NE: Niacin equivalents

1) Lochs H, Allison SP, Meier R, Pirlich M, Kondrup J, Schneider S, et al. Introductory to the ESPEN Guidelines on Enteral Nutrition: terminology, defi nitions and general topics. Clin Nutr 2006;25:180-6. 2) ESPGHAN Committee on Nutrition: JPGN 2010; 51 : 110-22. 3) Lacroix M et al.: Am J Clin Nutr 2006; 84: 1070-9. 4) Hoppe C et al.: Eur J Clin Nutr 2009; 63: 1076-83. 5) Boirie Y et al.: Proc. Natl. Acad. Sci. USA 1997; 94: 14930-5. 6) Mehta NM. et Compher C. ASPEN Clinical Guidelines: nutrition support of the critically ill child. JPEN 2009; 33 (3): 260-276. 7) Jaksic T. Effective and efficient nutritional support for the injured child. Surg Clin North Am 2002; 82(2): 379-391. 8) Corkins MR et Balint J. Pediatric nutrition support handbook. Silver Spring (MD): American Society for Parenteral and Enteral Nutrition, 2011. 9) Turck D, et al ESPENESPGHAN-ECFS guidelines on nutrition care for infants, children, and adults with cystic fibrosis. Clinl Nutr 2016; 35(3): 557-577. 10) Babayan VK. Medium chain triglycerides and structured lipids. Lipids 1986; 22(6): 417-420. 11) Ryan AS et al.: Prostaglandines,Leukotrienes and Essential Fatty Acids 2010; 82: 305-14. 12) Innis SM: J. Nutr. 2007; 137: 855-9. 13) Richardson A J et al.: PLOS ONE Sept 2012; 7(9), e43909. 14) Damsgaard CT et al.: J. Nutr. 2007; 137: 1031-6. 15) EFSA Panel on Dietetic Products Nutrition and Allergies (NDA): EFSA Journal 2010; 8(3):1461. 16) Marin MC et al.: Acta Paediatrica 2009; 98: 1982-7. 17) De Vizia B et al.: JPEN 2003; 27: 52-7. 18) Calder PC: Clin Nutr 2010; 29: 5-12. 19) Health Council of the Netherlands: Dietary Reference Intakes 2001; Publication no. 2001/19. 20) UK Scientific Advisory Committee on Nutrition: Advice on Fish Consumption: Benefits and Risks. 2004, London: The Stationery Office. 21) Conseil Supérior de la Santé: Recommandations nutritionnelles pour la Belgique. Révision 2009. 22) ANSES: Opinion of the French Food Safety Agency on the update of French population reference intakes (ANCs) for fatty acids. 2010.

FRESENIUS KABI
caring for life

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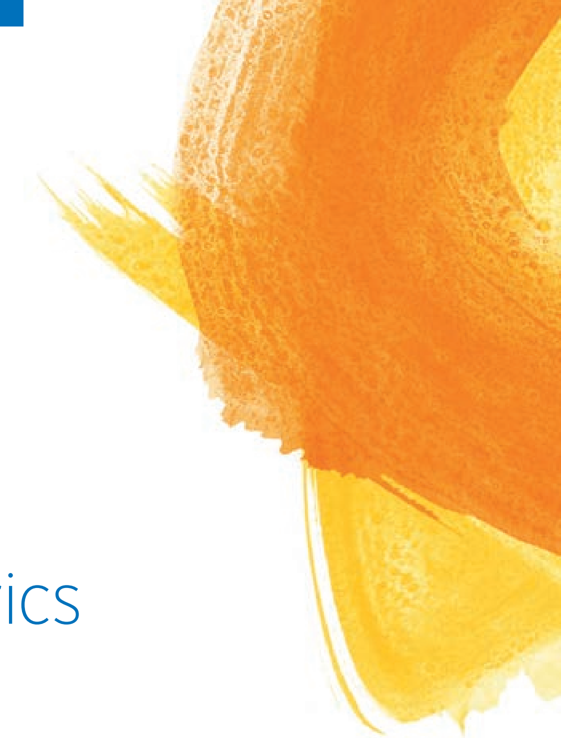

FRESENIUS KABI
caring for life

Frebini®
Enteral Nutrition in Paediatrics

Frebini
– Child Nutrition

A
Anti-inflammatory characteristics of fat composition with fish oil

B
Balanced protein composition

C
Complete in all essential nutrients

Frebini Tube Feeds

- Range of normo- and high caloric tube feeds with and without fibre
- Fibre free for patients who cannot tolerate fibre
  With fibre to maintain gut physiology[1)]
- For effective nutrition according to the specific needs of children

Caloric density	Without fibre	With fibre	Presentation
1.0 kcal/ml	**Frebini Original**	**Frebini Original Fibre**	500 ml EasyBag Neutral
1.5 kcal/ml	**Frebini Energy**	**Frebini Energy Fibre**	500 ml EasyBag Neutral

Frebini Sip Feeds

- 4 delicious flavours – tested by children: Vanilla, Chocolate, Strawberry, Banana
- In child-friendly EasyBottle, very well accepted by children

Caloric density	Without fibre	With fibre	Presentation
1.5 kcal/ml	**Frebini Energy DRINK Banana, Strawberry**	**Frebini Energy Fibre DRINK Vanilla, Chocolate**	200 ml EasyBottle

Indications

Failure to thrive	Enhanced energy and nutrient needs due to:	
Eating disorders	Cystic fibrosis	Post-surgery
Insufficient food intake	Crohn's disease	Neurological impairment
Loss of appetite	Chronic catabolic disease, e.g. cancer, HIV/AIDS	Physical disablement
	Trauma	Congenital heart disease

Fish Oil* and Complete Milk Protein

*in Tube Feeds

The ESPGHAN Committee on Nutrition Stated[2]:

"Paediatric patients represent a particularly vulnerable population that has specific nutritional requirements..."

The special nutritional quality of complete milk protein[3-5]

20 % whey protein		80 % casein
fast digested		slowly digested
early "peak" postprandial amino acid availability	+	later, but sustained delivery of amino acids
increase in fasting insulin	+	increase in insulin-like-growth factor 1 (IGF 1)
Early anabolic stimulus	+	**Late, sustained anabolic stimulus**

Body protein synthesis

GROWTH

The natural composition of milk protein is kept in **Frebini tube and sip feeds**

so that **children can benefit optimally** from both protein fractions – whey and casein.

Higher protein needs of paediatric patients

Frebini tube and sip feeds contain extra protein to meet the increased protein requirements of chronically or acutely ill children.
For **catch up growth and/or disease specific higher demands** such as:

- For the critically ill child[6] and the injured child[7] an increased protein uptake is recommened:
  0–2 years, 2–3 g/kg BW[0]/day; 2–13 years, 1.5–2 g/kg/day.
- Children with acute kidney injury on dialysis and with chronic kidney disease on dialysis have an increased DRI[00] of 0.2/0.4 and 0.1/0.15–0.3 g/kg IBW[000] per day.[8]
- Protein requirements of paediatric patients with cancer such as multiple myeloma or leucemia undergoing hematopoetic stem cell transplantation are higher: 2–3 g/kg BW/day are recommended.[8]
- For children with cystic fibrosis protein needs are probably higher compared to the healthy population i.e., 20% or more of macro-nutrient intake.[9]

[0] BW - Body weight, [00] DRI – Dietary Reference Intake, [000] IBW – Ideal Body Weight

Frebini tube feeds – the pioneer of LCPUFA▲ from fish oil in paediatric enteral nutrition

▲ long-chain polyunsaturated fatty acids
* EPA – eicosapentaenoic acid
** DHA – docosahexaenoic acid
# for children ≥ 1 year

- first on the market with fish oil in paediatric tube feeds# in 2001
- highest in EPA* and DHA** n-3 LCPUFA from fish oil#
- balanced composition of DHA** and EPA*

per 1000 ml	Kcal	DHA	EPA
Frebini Orginal/Orginal Fibre	**1.000**	**400 mg**	**500 mg**
Frebini Energy/Energy Fibre	**1.500**	**500 mg**	**700 mg**

- balanced fat composition with rapeseed oil, fish oil and Medium chain triglycerides[10)]

MCT for a more rapid absorption by the intestinal mucosa and a faster oxidation of medium chain fatty acids compared to long chain fatty acids.

DHA essential for the retina and brain development – which continues during childhood[11–13)]

+

EPA essential for cardiovascular and immunological health[14, 15)] and may be particularly beneficial for chronically or acutely ill patients with inflammatory conditions[16–18)]

In Europe, recommendations for LCPUFA in **healthy children** were defined by different associations.[15, 19–22)]

Many chronic and acute diseases involve excessive inflammation and/or immunosuppression.[18)] Therefore, the **requirements of LCPUFA** in **sick children** may be **significantly increased.**

Fish Oil* and Complete Milk Protein

*in Tube Feeds