Micronutrient Content in Pasteurized Donor Human Milk

HUMAN MILK BANKING ASSOCIATION OF NORTH AMERICA

HMBANA milk banks use multiple donor composition and pooling processes to produce nutritional consistency in our milk products. Our accredited milk banks also often provide energy and macronutrient information on the donor human milk label to inform fortification strategies in an effort to optimize growth and recovery in critically ill term and preterm infants. However, adequate micronutrient provision is also essential for adequate growth, development and healing in this population. [1]

To further inform clinical feeding practices when using donor milk, HMBANA is providing clinicians with reference information for vitamins and minerals in donor milk. Like mother's own milk, these components are variable. [2-6] Furthermore, variability in the composition of human milk fortifiers, formulas used to fortify human milk, and multi-vitamin and mineral supplements, coupled with disease states altering micronutrient requirements, requires attention to the reference material provided. The micronutrient data provided below are based on a study of 400 donations from HMBANA milk donors for which Dr. Maryanne Perrin and associates used computer modeling to describe vitamin and mineral composition in 1000 pools composed of 5 donors. We hope that the nutrition staff in hospitals find this helpful as they work to improve nutrition for our most vulnerable infants.

Estimated Nutrients in Donor Human Milk

Nutrients	10%ile	Median	90%ile
Minerals			
Calcium (mg/L)	222	259	301
Copper (µg/L)	156	219	298
Iron (µg/L)	121	172	251
Magnesium (mg/L)	27	32	37
Phosphorus (mg/L)	119	134	152
Potassium (mg/L)	401	450	501
Selenium (µg/L)	7	9	11
Sodium (mg/L)	72	97	131
Zinc (µg/L)	882	1472	2386
Vitamins			
Thiamine (µg/L)	116	131	149
Riboflavin (µg/L)	211	279	446
Niacin (µg/L)	1094	1396	1709
Pantothenic Acid (µg/L)	2631	3634	5449
B6 (µg/L)	109	145	224
Biotin (µg/L)	6	23	167
B12 (ng/L)	293	403	602
Water-Soluble Choline (mg/L)	80	92	106
Vitamin A (retinol) (µg/L)	340	440	550
Vitamin E (α-tocopherol) (µg/L)	3640	4730	6110

Notes: Data reflects median, 10th, and 90th percentile assuming 5 unique donors per pool. Underlying data is based on a random simulation of 1000 pools using the nutrient composition of 400 approved milk bank donors in the United States.[1]

References

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