EuroSciCon

2nd EuroSciCon Conference on

Food Technology

May 14-16, 2018
Rome, Italy

L Aumeistere et al., J Food Nutr Popul Health 2018, Volume: 2
DOI: 10.21767/2577-0586-C1-002

ZINC CONTENT IN BREAST MILK: REPORT FROM LATVIA

L Aumeistere[1,3], I Ciprovica[1], D Zavadska[2], K Bavrins[3] and A Borisova[3]

[1]Latvia University of Agriculture, Latvia
[2]Riga Stradins University, Latvia
[3]Institute of Food Safety, Animal Health and Environment "BIOR", Latvia

Zinc is essential component and plays crucial role in metabolism processes; therefore insufficient zinc intake at young age can detrimentally affect growth and development. More than half of the infants in Latvia (~57%) are exclusively breastfed for the first six months of life. The aim of this research was to determine zinc content in mature breast milk among lactating women in Latvia. The study was conducted from November 2016 until December 2017. In total, 64 mature milk (at least 1 month *postpartum*) samples pooled within 24 h were collected. Participants (64 mothers with singleton deliveries of 34 boys and 31 girl) were 23 to 38 years old. Babies were 1.5 to 21 month old. More than half of the participants (n=39) were exclusively breastfeeding during the study, while 25 mothers had started the weaning. Zinc content was determined using inductively coupled plasma mass spectrometry (ICP MS Agilent 7700x, Japan). In total, zinc content in breast milk varied from 0.01 to 0.34 mg 100 ml-1 with a mean content 0.12±0.08 mg 100 ml-1. Arranging results according to child's age, we observed that zinc content in breast milk significantly decreases after six months (see Table 1). Comparing our data to prescribed AI (adequate intake) and RDA (recommended daily allowance) for zinc (see Table 1), we conclude that infants in Latvia might not receive sufficient zinc intake with breast milk. To draw further conclusion, mother's dietary habits during lactation period should be analysed as they may reveal some influence on zinc content in breast milk. In addition, zinc serum levels should be assessed, both mothers and children.

Table 1

Amount of zinc transferred in breast milk, depending on child's age

Age group (months)	Zinc content in breast milk (mg 100 ml^{-1})	Sample count, n	The mean amount of breast milk consumed depending on age (ml per day)[c]	Nutritional requirements for zinc (mg per day)
1-2	0.16±0.04[a]	11	679±150	2.0 (0-6 months)[d] 5.0 (7-12 months)[e] 6.0 (12-36 months)[e]
3-5	0.14±0.09[a]	29	745±152	
6-8	0.07±0.04[b]	11	688±156	
9-11	0.07±0.02[b]	9	529±230	
12-21	0.07±0.04[b]	4	448±251	

a, b - values with the same letter is not significantly different (p>0.05) c - Data from Brown et al., 1998. Complementary feeding of young children in developing countries: a review of current scientific knowledge, WHO/NUT/98.1. Geneva: WHO d - Adequate Intake (AI). Source – Institute of Medicine (US) Panel on Micronutrients. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. Washington (DC): National Academies Press (US), 2001. e - Recommended Dietary Allowances (RDA) for the people of Latvia. Approved by the Ministry of Health of the Republic of Latvia. No. 212. November 24, 2017.

Biography

L Aumeistere has a professional Bachelor's Degree in Health Care (Dietitian) and also earned a Master of Engineering Degree in Food Science (Mg.Sc.ing.). Currently she is a PhD student in Food Science programme at Latvia University of Agriculture and also a Researcher in the Research Institute of Food Safety, Animal Health and Environment "BIOR".

liva.aumeistere@bior.lv