

Fats in breastmilk are unique to each mother

WINNIPEG, MB (7 October 2019)

Research tells us that breastmilk is full of nutrients that feed and protect babies, including long-chain polyunsaturated fatty acids that play a pivotal role in building an infant's nervous system and helping healthy brain and eye development.

New findings from the [CHILD Cohort Study](#) – a national birth cohort study involving thousands of Canadian children and their families – have shed light on the dietary, genetic, sociodemographic, health and environmental factors that influence human milk fatty acid composition.

[The study](#), published today in the *American Journal of Clinical Nutrition*, found that the amount and mixture of breast milk fats are unique to each mother.

“Overall, we found that a mother's diet, especially fish intake and the use of fish oil supplements, was important in determining concentrations of long-chain polyunsaturated omega-3 milk fatty acids, while a mother's genes mainly determined the concentrations of omega-6 milk fatty acids,” said Dr. Meghan Azad, the University of Manitoba investigator who led the study.

Dr. Azad is an AllerGen investigator, a Canada Research Chair in Developmental Origins of Chronic Disease at the University of Manitoba, and a research scientist at the Children's Hospital Research Institute of Manitoba (CHRIM). She co-leads the Manitoba site of the CHILD Cohort Study.

In addition to a mother's diet and genetics, the researchers also examined the impact of sociodemographic and environmental factors such as birth mode, gestational age, maternal pre-pregnancy weight and other factors on fatty acid concentrations.

“We found that a mother's body mass index (BMI) before pregnancy, and even the time of year, were associated with fatty acid levels and patterns in human milk,” said the paper's first author Dr. Kozeta Miliku, an AllerGen trainee and a postdoctoral fellow at the University of Manitoba. “For example, some milk fats were higher in winter, while others were higher in summer.”

The study further found that Canadian mothers have low levels of milk DHA (docosahexaenoic acid) or “good” fat, compared to the world average. However, if mothers used a fish oil supplement during pregnancy and/or breastfeeding, the average breastmilk DHA concentration achieved the minimum level required, according to world guidelines.

“DHA is one of the most important omega-3 fatty acids related to infant brain development, and it has been shown to support long-term heart health,” said co-author Dr. Catherine Field, a professor in the Faculty of Agriculture, Life and Environmental Sciences at the University of Alberta.

The researchers used data from more than 1,000 mothers and their infants participating in the CHILD Cohort Study – an ongoing study of nearly 3,500 mothers and their children that has published numerous discoveries about child and youth health, including factors contributing to the development of asthma, food allergies, obesity, and other early-childhood conditions.

“To our knowledge, this study is the first to assess such a wide variety of factors that influence the concentrations of DHA and other fatty acids in human milk, highlighting the incredible variation that makes human milk so unique,” said Dr. Azad.

About the CHILD Cohort Study: Launched in 2008 by CIHR and AllerGen NCE, the [CHILD Cohort Study \(CHILD\)](#) is tracking nearly 3,500 Canadian infants and their families to help determine the root causes of chronic diseases such as asthma, allergies and obesity. CHILD spans four provinces, involving over 140 multidisciplinary researchers, students and research staff. [Watch the CHILD Cohort Study videos.](#)

About the Children’s Hospital Research Institute of Manitoba: The Children’s Hospital Research Institute of Manitoba was established in 2001. [CHRIM](#) is the research division of the Children’s Hospital Foundation of Manitoba. At the Institute, more than 270 world-class pediatric medical researchers, technical staff, students and support staff are involved in over \$20 million of research and clinical trial activity each year.

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Media Contacts:

Stephanie Matthews
Children’s Hospital Research Institute of Manitoba
Tel: (204) 272-3135
Email: smatthews@chrим.ca

Ilana Simon
Rady Faculty of Health Sciences
University of Manitoba
Tel: (204) 789-3427
Email: ilana.simon@umanitoba

Kim Wright
AllerGen NCE Inc.
Tel: (905) 525-9140 ext. 26641
Email: kimwright@allergen-nce.ca