

Pasteurized donor milk may lose essential hormones

May 1 2024



Credit: Unsplash/CC0 Public Domain

Pre-term babies consuming donor breast milk may be missing out on important hormones, such as melatonin, which are crucial for healthy infant development according to La Trobe University research.

Melatonin has been shown to have a significant decrease in inflammation, [oxidative stress](#) and [cell death](#), especially when given to pre-term infants. Furthermore, the sleep hormone has been found to improve the clinical outcomes of pre-term infants with neonatal sepsis within 24–72 hours of being administered.

Donor breast milk banks are used when mothers cannot supply their own breast milk and can be especially helpful for sick or [premature babies](#).

In Australia, donor banks use high-temperature pasteurization to ensure bacteria and viruses are destroyed in the breast milk before consumption. However, the consequence of this on melatonin has been put under the microscope by experts investigating the impacts of pasteurization on melatonin in breast milk.

Research led by Dr. Lauren Booker, at La Trobe's School of Psychology and Public Health, revealed the high-temperature pasteurization significantly reduced melatonin levels in breast milk. The research has resulted in two articles published in the journal *Breastfeeding Medicine*.

"Melatonin is considered a potential new tool for neuroprotection in pre-term newborns, however our project showed melatonin in breast milk declined significantly, on average by 23.6%, following pasteurization," Dr. Booker said.

"Even though breast milk melatonin decreased significantly after pasteurization, it was still detectable at levels that could impact an infant's circadian timing if consumed at the wrong time of day."

Breast milk contains hormones that exhibit a 24-hour circadian rhythm, with melatonin detected at night but barely detectable during the day, providing sleep or wake signals to the infant. Past research has found altered hormonal timings could affect the establishment of a healthy

sleep cycle in infants and potentially cause long-term health impacts.

"There are no current policies at Australian donor breast milk banks to consider the timing of breast milk expression from donor mothers and the presence of circadian timed hormones, such as melatonin," Dr. Booker said.

Dr. Booker suggested donated breast milk should be time-stamped to reflect when it was expressed, and the pasteurization could be undertaken in batches based on the time of day the milk was expressed.

"As growing evidence of research reveals potential consequences in giving infants mixed or mistimed hormones in breast milk, it is important to consider the amount of [melatonin](#) in [donor breast milk](#) and its effect on pasteurization," Dr. Booker said.

More information: Lauren A. Booker et al, High-Temperature Pasteurization Used at Donor Breast Milk Banks Reduces Melatonin Levels in Breast Milk, *Breastfeeding Medicine* (2023). [DOI: 10.1089/bfm.2023.0068](https://doi.org/10.1089/bfm.2023.0068)

Lauren A. Booker et al, Rapid Versus Slow Cooling Pasteurization of Donor Breast Milk: Does the Cooling Rate Effect Melatonin Reduction?, *Breastfeeding Medicine* (2023). [DOI: 10.1089/bfm.2023.0244](https://doi.org/10.1089/bfm.2023.0244)

Provided by La Trobe University

Citation: Pasteurized donor milk may lose essential hormones (2024, May 1) retrieved 11 June 2024 from <https://medicalxpress.com/news/2024-05-pasteurized-donor-essential-hormones.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.