



nutrishield

Fact-based personalised
nutrition of lactating mothers



Objective

NUTRISHIELD aims to find ways to improve preterm infants' health through mother's nutrition, developing a tool for providing personalised nutritional advice to lactating mothers.

USE CASE DESCRIPTION: HUMAN MILK



Donor VS Own mother's milk

Human milk, specifically own mother's milk, has been demonstrated as a major promoter of health and development of the newborn.

However, when mother's milk is not available in sufficient quantity, **donor human milk** is a valuable alternative. Donors are mothers that have enough milk for their babies and donate excess volumes of milk for other babies. Their milk is collected, pasteurized, and then distributed by Human Milk Banks to other infants that require it.

In this study, we evaluate how own mother's milk and donor human milk composition impact preterm infant's growth and other health parameters, in order to improve its biological quality.



Mother's milk changes and influences

The changes in human milk composition through the course of lactation are natural. However, the influence of other factors, such as diet, milk pasteurization and lifestyle habits are an unexplored field of research that deserves attention.

In this study, we aim at correlating the relationship between mother's diet, lifestyle habits and milk composition examining, in turn, the connection between milk composition and babies' health and developmental outcomes. This will be monitored in both, unpasteurized own mother's milk and donor human milk, before and after pasteurization.

Through a comprehensive follow up, microbiome, and lipidomic analysis of the milk, and mothers' and babies' biological samples (urine and feces), it will be possible to understand how maternal diet affects their milk and, consequently, babies' health.





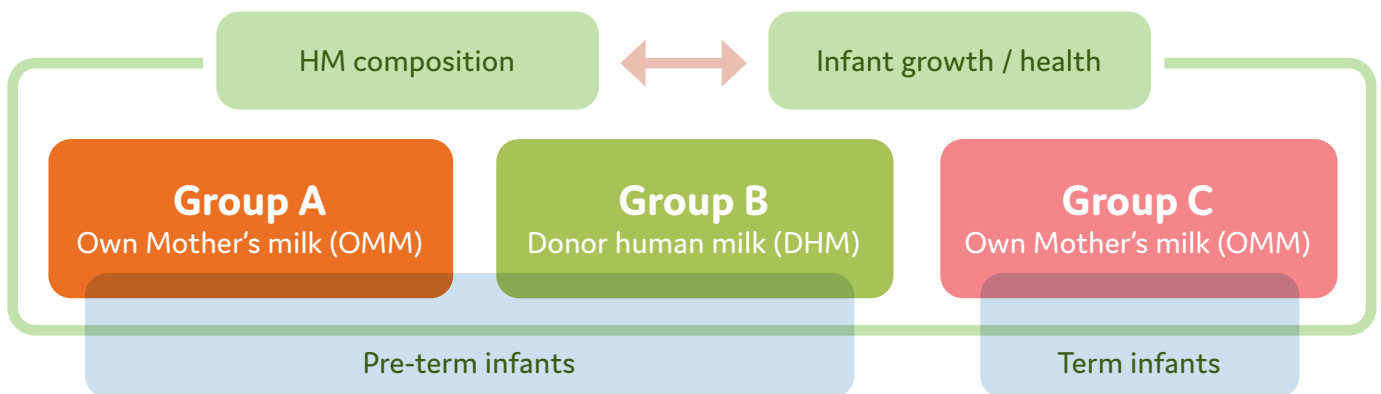
Use case description: Premature births

Premature babies represent the most vulnerable and at-risk population, representing the **5 to 18%** of babies born worldwide.

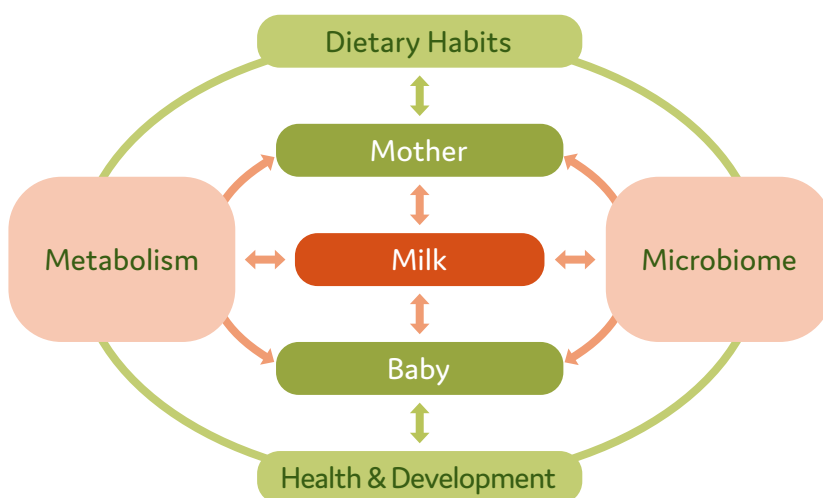
Prematurity is the leading cause of death in children **< 5 years** and **80%** of the survivors face long-lasting sequels, including learning, visual and hearing disabilities. This is very arduous for their families, especially their mothers, who experience strong psychological distress, postpartum depression, anxiety, and stress. Apart from the great emotional difficulty, it also imposes financial burdens on both, families, and the health care system.

For this reason, we aim to improve preterm infant's health by studying the difference between babies taking own mother's milk and donor human milk, compared to term infants as control group.

Study Matrix: The set-up for understanding the different relationships.



Multifactor understanding of the relationship between mother, diet, milk, and babies' health.



PRE-TERM BABIES

- Trying to understand the elements in the chain from mother to baby
- Relationship between Mother -> Milk
- Relationship between Milk -> Baby
- Monitor metabolism & Microbiome
- Ultimately make the whole connection Mother Diet -> Baby's Health



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