SUPPLEMENTATION WITH THE PROBIOTIC STRAIN *LIGILACTOBACCILUS SALIVARIUS* PS2 DURING PREGNANCY AND LACTATION PREVENTS MASTITIS

Online publication: https://www.mdpi.com/2076-2607/9/9/1933

DANONE NUTRICIA RESEARCH

Mastitis is a key barrier to continue breastfeeding

The incidence of mastitis is estimated to be between 10-33% of breastfeeding mothers

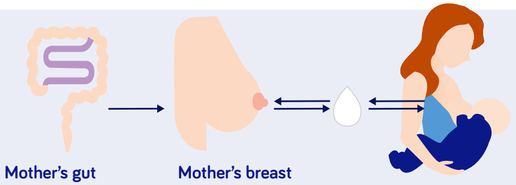
Mastitis is an inflammatory condition of the breast, which may or may not be accompanied by infection.[1]

Mastitis: a dysbiosis of the human milk microbiota

A depletion of beneficial commensal bacteria[2]	Rapid growth of opportunistic pathogenic bacteria[2]
(e.g. *Lactococcus, Lactobacillus*)	(e.g. *Staphylococcus, Streptococcus, Corynebacterium*)

One of the common current practices for treating mastisis is the use of antibiotics. However, this can negatively impact the maternal microbiota and thus result in an alteration of the mother-to-infant microbiota transmission.

Flow of microbiota



HUMAN MILK

Human milk is the best source of nutrition for all infants, and breastfeeding has numerous short- and long-term benefits for both infants and mothers.

Each drop of human milk contains thousands of different molecules that work in unison.

Bacteria & Probiotics

It has been estimated that human milk contains between bacteria 10^3-10^6 bacteria per milliliter.[3,4]

Bacteria present in human milk are for example: *Streptococcus, Staphylococcus, Lactobacillus* and *Bifidobacterium*.[5–7] Many of these bacteria may be human commensals or have potential probiotic effects.

PREMIUM STUDY:

ORAL ADMINISTRATION OF THE PROBIOTIC STRAIN *L. SALIVARIUS* PS2 DURING LATE PREGNANCY AND EARLY LACTATION TO PREVENT MASTITIS IN A HEALTHY POPULATION

A randomized, double-blind, placebo controlled, parallel group, intervention study

328 subjects | 16 sites | 4 countries

Healthy pregnant women intending to breastfeed their babies recruited between 33rd and 35th week of pregnancy

TWO GROUPS

Probiotic Group	Placebo Group
One sachet (10^9 CFU *L. salivarius* PS2)/day (until delivery)	One sachet (carrier)/day (until delivery)

- 35 weeks pregnant — Start study product or placebo intake
- Within 7 days after delivery
- 6 weeks after delivery
- 12 weeks after delivery — Last study product or placebo intake

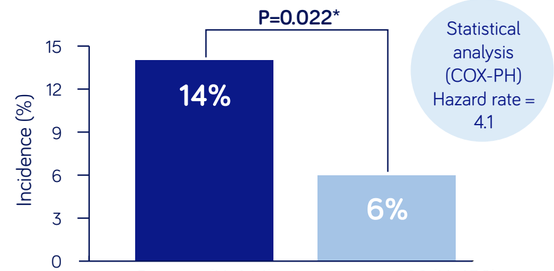
Data collected:
- Data on breastfeeding
- The presence of local breast symptoms, for mastitis diagnosis
- Evaluation gastrointestinal symptoms via questionnaire

*Additional visits and assessments were performed in case of (suspected) mastitis

RESULTS

58%

PS2 significantly reduces the incidence of mastitis, 58% less likely to develop mastitis



Statistical analysis (COX-PH) Hazard rate = 4.1

*Log-rank test

In total 29 subjects reported mastitis

Probiotic group **n=9** **Placebo** group **n=20**

In case of mastitis there seems to be a more pronounced reduction in breast pain and less use of antibiotics in the probiotic (PS2) group

No safety concerns with regard to the occurence of adverse events

CONCLUSION

The probiotic strain *l. salivarius* PS2 is suitable for the prevention of mastitis

References: **1.** WHO, Mastitis: causes and management, 2000. **2.** Patel et al. 2017. **3.** Boix-Amorós A, Collado M, Mira A. Relationship between Milk Microbiota, Bacterial Load, Macronutrients, and Human Cells during Lactation. Front Microbiol. 2016;7:492. **4.** Heikkilä M, Saris P. Inhibition of Staphylococcus aureus by the commensal bacteria of human milk. J Appl Microbiol. 2003;95(3):471-478. **5.** Jost T, Lacroix C, Braegger C, Chassard C. Assessment of bacterial diversity in breast milk using culture-dependent and culture-independent approaches. Br J Nutr. 2013;110(7):1253-1262. **6.** Bergmann H, Rodríguez J, Salminen S, Szajewska H. Probiotics in human milk and probiotic supplementation in infant nutrition: a workshop report. Br J Nutr. 2014;112(7):1119-1128. **7.** Hunt K, Foster J, Forney L, et al. Characterization of the diversity and temporal stability of bacterial communities in human milk. PLoS One. 2011;6(6):e21313.