

BACTERIA IN HUMAN MILK: DO THEY REALLY MAKE A DIFFERENCE?

JULY

27

WESTERN PACIFIC REGION

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Speaker: Professor Mark Nicol

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We studied the human milk (HM) metabolome and microbiome in women participating in a South African birth cohort, the Drakenstein Child Health Study. A subset of women (45/519, 8.7%) had low HM lactose (>2SD below mean). Low lactose was associated with shorter exclusive breastfeeding duration (28 vs 55 days) and poor infant growth during exclusive breastfeeding. Metabolomic profiling of low-lactose HM revealed an increase in metabolites associated with microbial carbohydrate metabolism. 16S rRNA amplicon sequencing showed that HM samples with low lactose had significantly higher median relative abundance of *Staphylococcus* species compared with normal lactose HM (19% vs 5%) and increased bacterial load. Further, *S. aureus* was isolated from 73% of HM samples with low lactose compared with 20% of samples with normal milk lactose. Growth of *S. aureus* in vitro was inhibited by typical concentrations of lactose found in HM. Low lactose in HM may be permissive for the growth of *S. aureus* and contribute to poorer lactational outcomes.



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