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From brain to brain through unsurpassed infant nutrition: A narrative review

Maternal and infant morbidities are health denominators of a nation. Exclusive breastfeeding prevents infant morbidities and mortalities and recent understanding indicates that breastfeeding has long term health impact. The mother's emotions are translated by known pathways and transmitted through her milk influencing, bidirectionally, emotional and physical health for mother and child. Breast milk provides nourishment replete with immunological, hormonal, genetic and bioactive substances influenced also by maternal emotion. The lactating mammary glands are linked by networks established in utero, continuing through mother's milk after severance of the umbilical cord. The mother's gut is immunologically linked to her lactating mammary glands, *via* the entero-mammary bond. Mucosal immunity is enriched by maternal immunological experience, augmented by such things as maternal vaccination impacted also by maternal feelings. It has been shown that areas of her brain meting out emotional and sensory signals are embryologically connected to her gut. The gut brain axis by vagal pathways and gut microbial flora link the central and enteric nervous systems. From the gut, enriched by mucosal immunity and impacted by emotion, cellular communication to her infant occurs through nutrition in mother's milk. Through her milk, the infant's maturing central and enteric nervous systems are guided by pluripotent stem cells, growth factors and cellular signals thus received. Breast milk stimulates friendly intestinal microbial flora which participate in maturing the infant's organ systems including the infant's gut brain axis. Cellular intelligence and mucosal immunity in the breastfed infant's gut provide early protection against diseases as well as physical and mental comorbidities. The maternal entero-mammary bond and the mother- nursling gut brain axis complete an early nutritional circuit with physical and psychological consequence, for primary general physical and mental well-being of both mother and child.

Biography

Prameela Kannan Kutty is a Pediatrician who has her expertise in teaching, general pediatrics and practicing community pediatrics to improve the health of children and women. She has built hypothetical models in many topics pertaining to the bio-immuno-dynamics of breast milk reviewing molecular evidence and relating this evidence to clinical and community scenarios. Her breastfeeding models open areas for research and are useful innovations in continuing medical education. Her teaching integrates clinical medicine with basic sciences and opens areas for research and stimulates thought provoking ideas for further scientific investigation. She is the author of a book in clinical pediatrics linking basic sciences to clinical pediatrics by vertical and horizontal integration.

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