Description

Promoting Skin, Oral and Gut Microbiome

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Introduction

During physiological birth, early microbiota seeding is essential for the development of the neonates' skin, oral and gut microbiome within the endocrine, metabolic and immune systems. Microbiome defines microorganisms such as fungi, viruses and bacteria which are present within the body, particularly the skin, lungs, intestines, vagina and oral cavity, and are essential for the protection of short and long-term health.[1] There is some evidence to suggest microbiota are also present in amniotic fluid, and with fetal swallowing reflexes apparent as early as 10 to 13 weeks gestation, this implies that protective gut microbiomes are already present in the fetal gastrointestinal tract prior to birth.[2] The fetus is also coated in vernix caseosa which protects the skin in utero and contains antibacterial enzymes. Newborn skin microbiome initially reflects the microbiota it is primarily exposed to at birth whether that is from the vagina or the maternal skin.

Heathy skin microbiomes

At term, maternal microbiomes in the vagina increase acidity to deter harmful bacteria and create an optimal birth environment. During parturition, the fetus is exposed to microbiome from the vagina and amniotic fluid on the maternal skin. Skin microbiotas promote functions such as maintaining pH values and create a natural barrier and protection from harmful pathogens. Therefore, regular skin-to- skin contact is vital to promote the early mother to newborn transfer of microbiomes. Skin-to-skin care is known to help initiate breastfeeding, stabilise thermoregulation and promotes the release of oxytocin, but importantly it also creates an optimal environment for heathy skin microbiomes.

> "Regular skin-to-skin contact is vital to promote the early mother to newborn transfer of microbiomes."

Development of oral and gut microbiota

Prioritising the mother-baby dyad and promoting zero separation is essential for psychological and physical processes to occur.[3] Affectionate maternal responses, such as kissing the baby, also transmits oral microbiome from the mother to the newborns' skin but reciprocally transfers microbiota from the baby's skin back to the mother allowing her to produce unique antibodies to protect her baby within her breastmilk. As the newborn begins to root and latch onto the breast,

microbiota is swallowed with colostrum, establishing the oral and gut microbiome.[4] Benefits of breastfeeding offer protection against long-term maternal and childhood morbidities, but the probiotic properties of specific constituents' oligosaccharides, bifidobacterium and lactoferrin, prevent the colonisation of harmful pathogens and have a vital role in the development of oral and gut microbiota.[5]

Providing support and education to parents regarding establishment of the natural microbiome is therefore essential to foster optimal health and development of the newborn. **TPM**

For more information on the skin microbiome, read this article from a previous issue of The Practising Midwife journal.

References

1. Cook K. Birth and the Microbiome; What All Midwives Need to Know. TPM. 2018:21:4 https://doi.org/10.55975/crdp9450.
2. Yieh Lin Chong C, Bloomfield FH, O'Sullivan JM. Factors Affecting Gastrointestinal Microbiome Development in Neonates. Nutrients. 2018:10(3):274. doi:10.3390/nu10030274.
3. Klemming S, Lilliesköld S, Westrup B. Mother-Newborn Couplet Care from theory to practice to ensure zero separation for all newborns. Acta Paediatr. 2021:110(11):2951- 2957. doi.org:10.1111/apa.15997.
4. Einion A. Skin Microbiome. TPM. 2023:26(6)19. doi. org/10.55975/abfh1543.
5. Butler C, Adams G, Blum J, et al. Breastmilk influences development and composition of the oral microbiome. J Oral Microbiol. 2022:14(1):2096287. doi.org/10.1080/20002297. 2022.2096287.

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