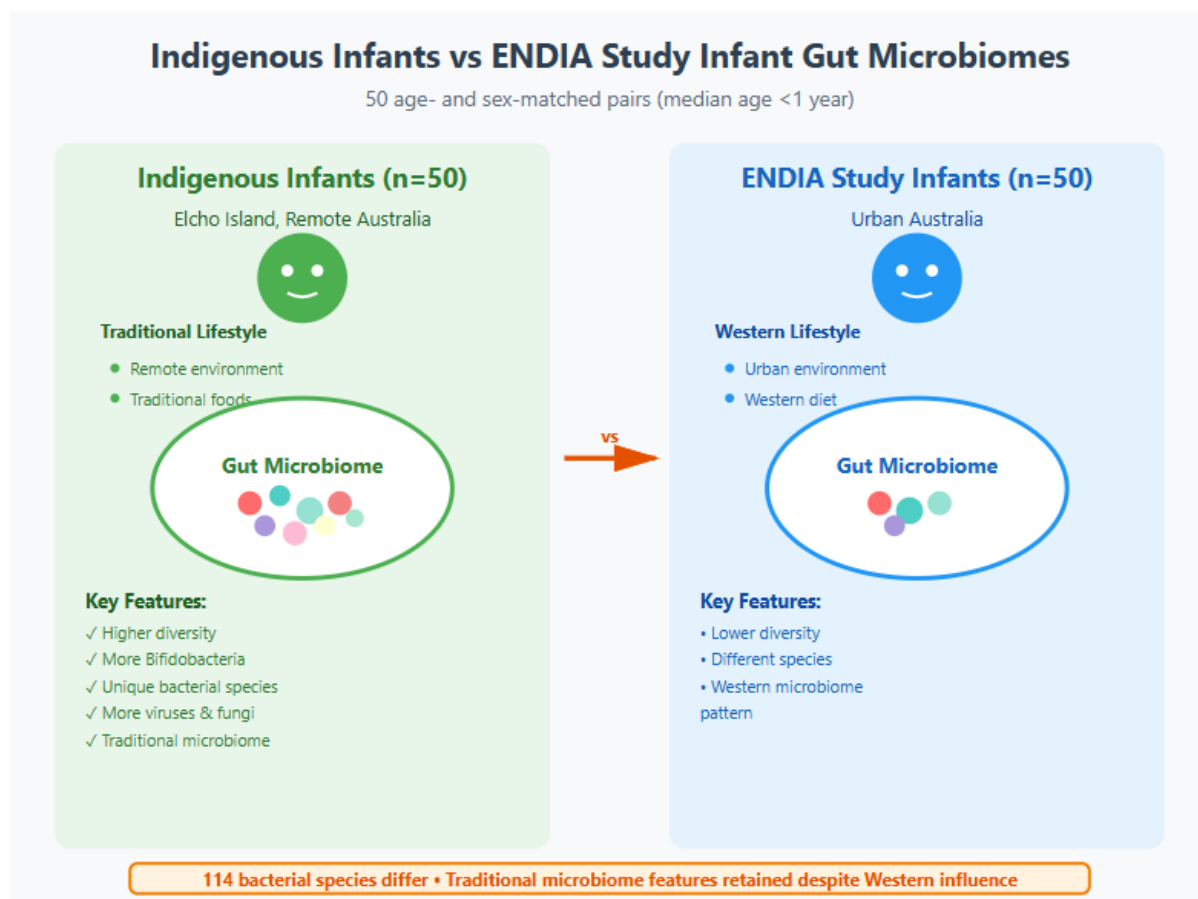


Indigenous infants in remote Australia retain an ancestral gut microbiome despite encroaching Westernization - Summary for ENDIA participants



In this study published in [Nature Communications](#), we compared the gut microbes of 50 Indigenous infants living in remote Australian communities (ELCHO Island) with age-sex matched non-Indigenous infants who were participants in the ENDIA Study.

Gut microbes are the bacteria, viruses, and fungi that live in the digestive system and play an important role in digestion, immunity, and overall health. This is also known as the “microbiome”.

Elcho Island, known to its traditional owners as Galiwin'ku, is an island off the coast of Arnhem Land in the Northern Territory of Australia. Situated about 2 miles across Cadell Strait from the Napier Peninsula and approximately 500 km east of Darwin, Elcho is a highly relevant location for studying traditional microbiomes in a population with limited Western influence.

We found clear and important differences between the two groups. Indigenous infants had a much richer and more diverse mix of gut microbes than the ENDIA infants. Many of the microbes found in Indigenous infants are commonly seen in traditional, non-industrialised societies, but are now rare or missing in modern urban populations. Some types of microbes were present only in Indigenous infants and not detected in the ENDIA infants. Indigenous infants also had higher levels of beneficial bacteria that grow on breast milk, which fits with the high rates of exclusive breastfeeding in this group.

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These differences were not explained by antibiotic use, which was uncommon in both groups. The infants were also similar in terms of birth method and the age at which solid foods were introduced. This suggests that the differences in gut microbes are likely related to broader influences such as the natural environment, traditional diet, lifestyle, and close contact with family, land, animals, soil, and water. These factors shape the gut microbiome across generations, mainly through mothers passing microbes to their babies at birth and during breastfeeding.

We also measured markers related to gut health. One marker was higher in Indigenous infants, but this did not appear to indicate gut disease or damage. Instead, it is most likely explained by high levels of exclusive breastfeeding, which is known to raise this marker in healthy babies. Another marker of gut damage showed no differences between groups.

Overall, this study shows that Indigenous infants begin life with a distinctive, ancestral gut microbiome that has not yet been strongly altered by Western lifestyles. These findings provide a valuable starting point for understanding how environment and lifestyle influence gut health and long-term health outcomes for Indigenous children.

Access the paper in Nature Communications online at: <https://rdcu.be/eUFdK>