Oral microbiome development in infants

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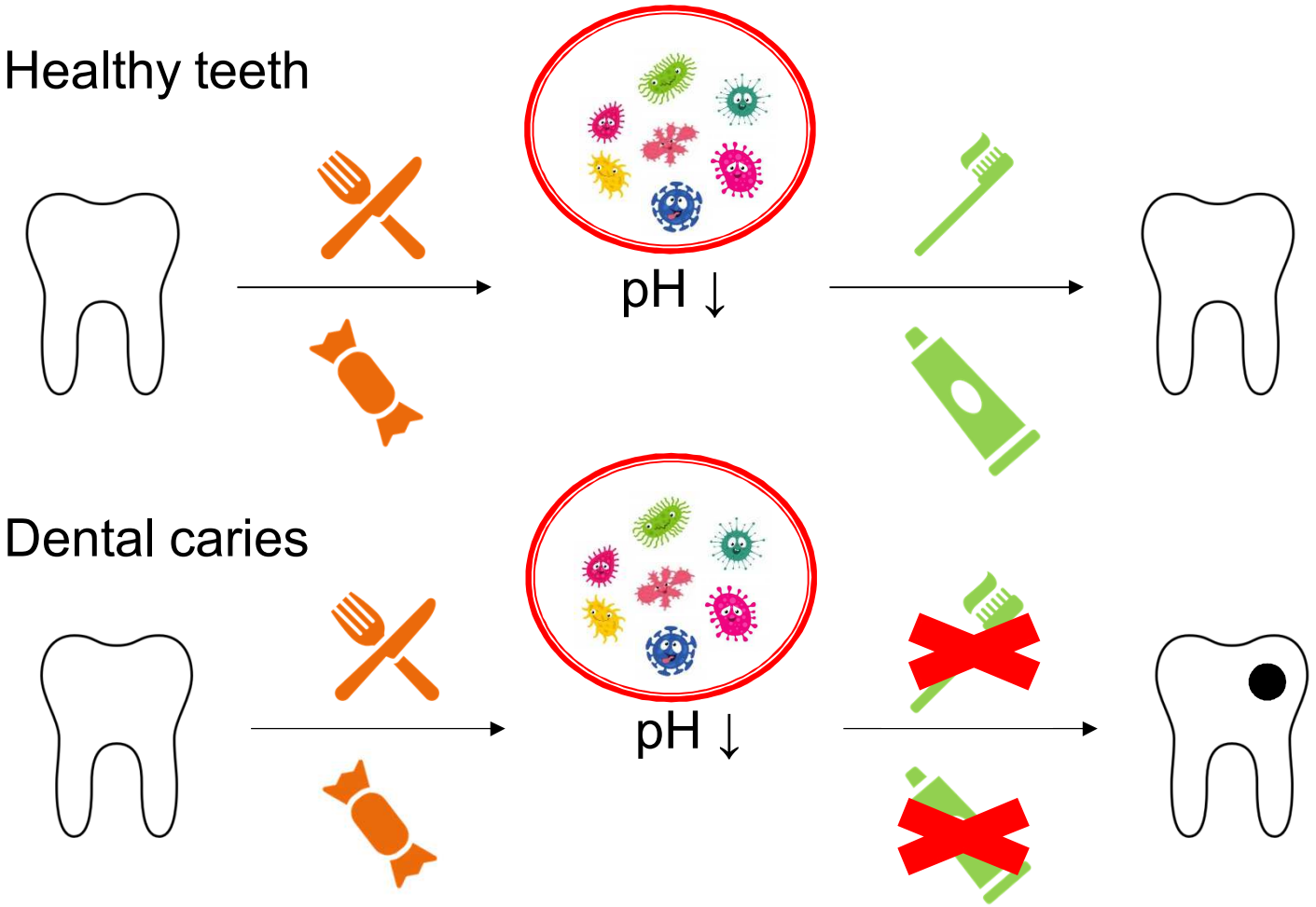
https://www.tipsenweetjes.nl/gezondheid/als-s-nachts-wakker-ligt-dan-intelligent-persoon/

https://www.tipsenweetjes.nl/gezondheid/als-s-nachts-wakker-ligt-dan-intelligent-persoon/
https://nl.freepik.com/premium-vector/cartoon-grappige-bacterien-en-kiemen-vector-tekens_4080051.htm

Dental caries/cavities

- Dental cavities are holes in the hard surface of the tooth.
- Untreated, it can lead to pain, infection and tooth loss.
- 66% of 5-year olds has 1 or more dental cavities
- Tooth decay is caused by a combination of factors, including frequent snacking, sugary drinks, not cleaning the teeth well, and **oral bacteria**.

https://parenting.firstcry.com/articles/tooth-decay-in-children-causes-signs-treatment/
https://cochraneohg.wordpress.com/2015/04/14/not-enough-evidence-to-recommend-chlorhexidine-treatment-to-reduce-tooth-decay-in-children/


Healthy teeth
pH ↓
Dental caries
pH ↓

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Child Weight Gain Trajectories Linked To Oral Microbiota Composition

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Sarah J. C. Craig[1,2], Daniel Blankenberg[ ], Leann L. Birch[6], Jennifer S. Savage[7,8], Mich[ ], Anton Nekrutenko[3], Matthew Reimherr[1,9], Kateryna D. Makova[1,2]

Longitudinal evaluation of oral health, microbiome, lifestyle habits and demographic factors

Home sample collection

Pilot study – feasibility of home sample collection

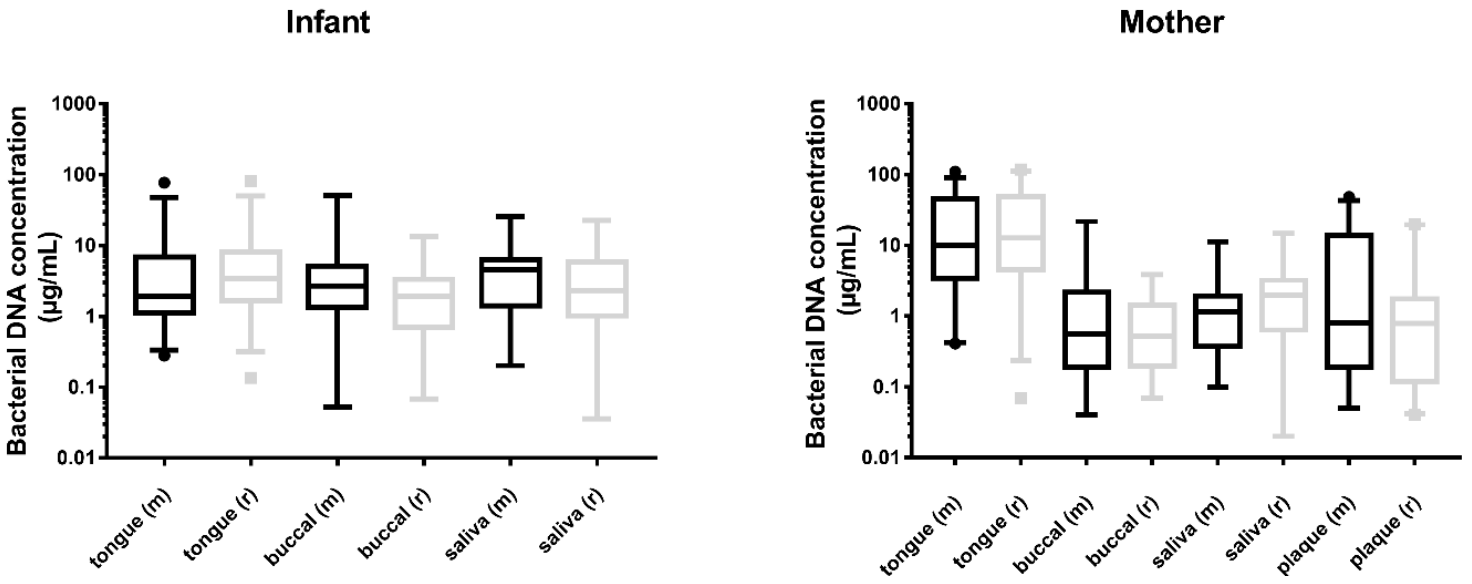
Objectives

1. To assess differences between samples collected by a mother and a researcher
2. To define which oral niche in infants is most feasible for microbiota analysis

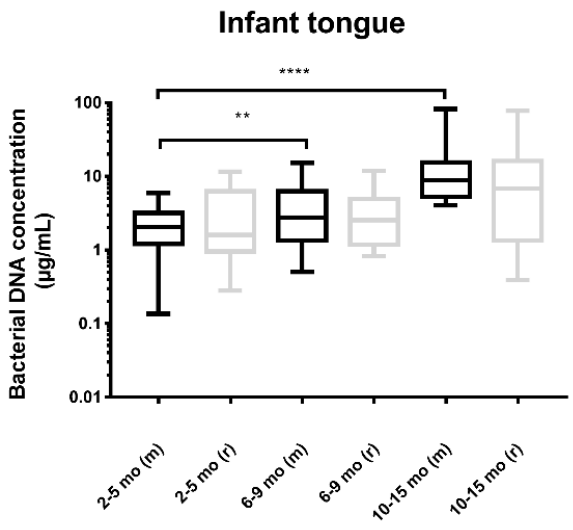
Methods

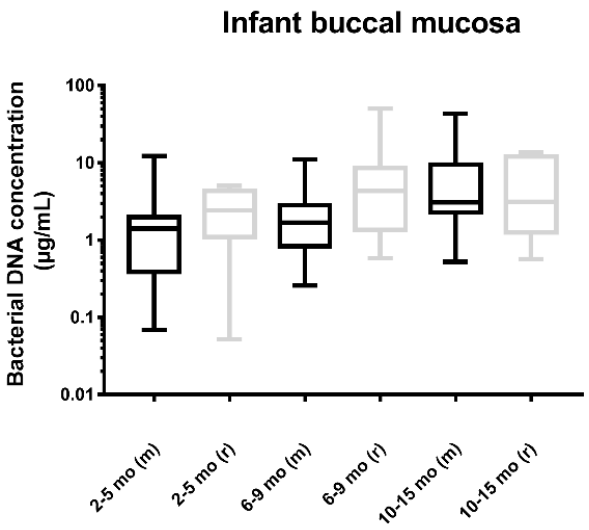
- 30 mothers and 30 infants (aged 2 – 14 months old)
- Instruction videos
- 4 samples (tongue, buccal mucosa, saliva, dental plaq
- Samples collected by mother and researcher
- Questionnaires
- Observational records during sample collection
- qPCR, 16S rDNA sequencing

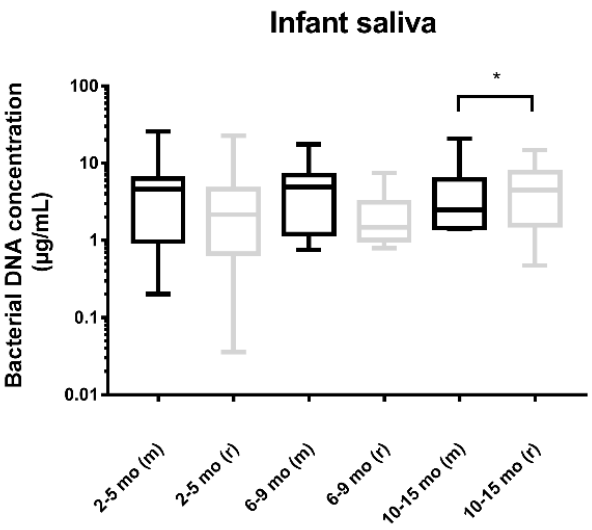
Bacterial DNA concentration



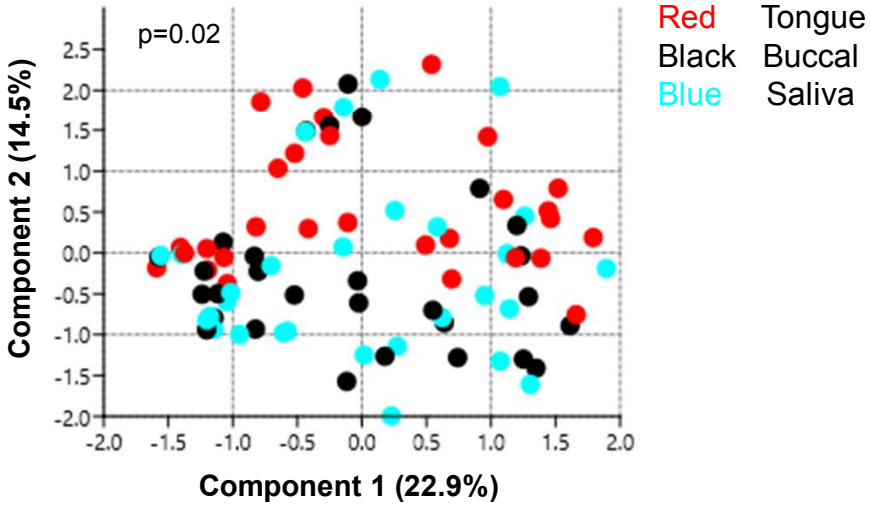
Amount of bacterial DNA per age group





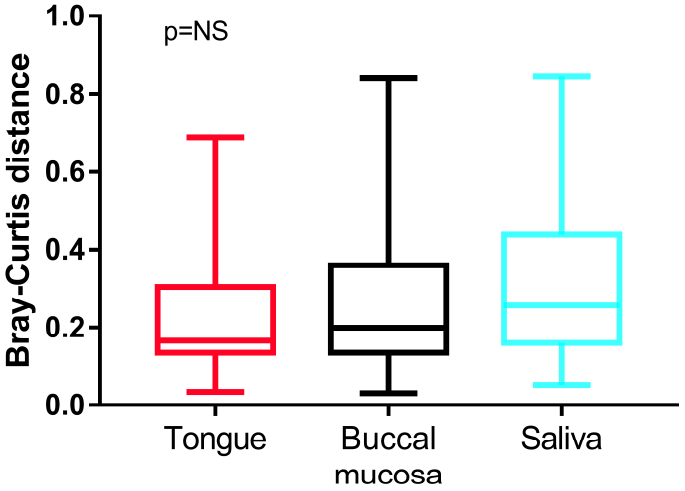


Principal component analysis per oral niche



Red Tongue
Black Buccal
Blue Saliva

Bray-Curtis dissimilarity of samples collected by mother and researcher



Conclusion

Home sampling by a mother is a feasible method for oral sample collection in infants.

Tongue is shown to be the preferred niche with least differences between the two operators.

Next steps

Thank you for your attention!

Department of Preventive Dentistry
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