

The Examination of Breastfeeding versus Bottle-Feeding on Early Childhood Caries: A Rapid Systematic Review



Autumn Grant, Cassidy Stewart, Hannah-Grace Henn, Jenée Fontenot, Jennifer Franco

College of Health Sciences

**School of Allied Health
University of Louisiana at Monroe**

Research Mentor: Dr. Jessica Dolecheck

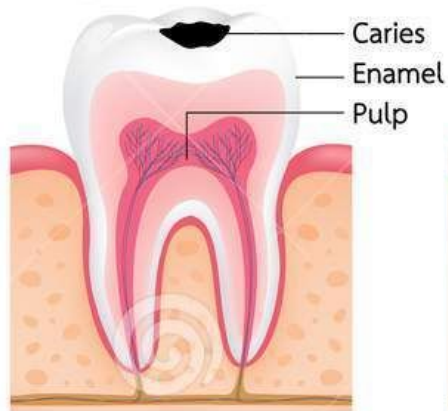
Research Question

Do Bottle-fed Children Have More Dental Caries
in Primary Dentition than Breastfed Children?

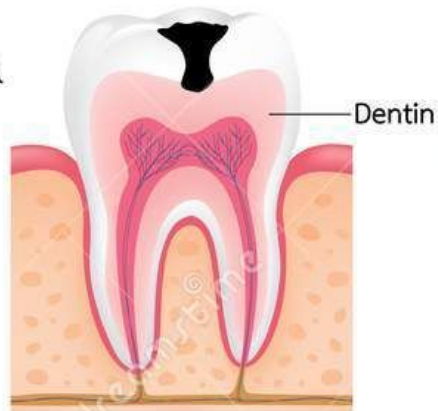
Sub Questions

1. What are dental caries and how are they caused?
2. Does a baby's food source affect their oral development?
3. What are the nutritional differences between breast and formula milk?

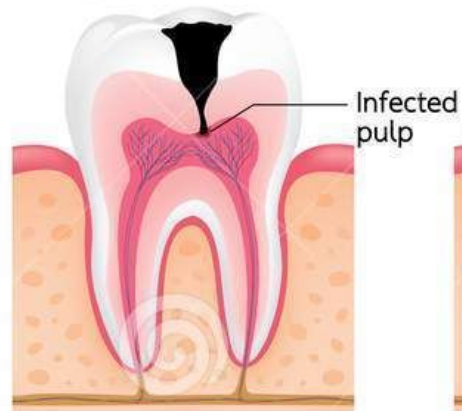
THE STAGES OF CARIES DEVELOPMENT



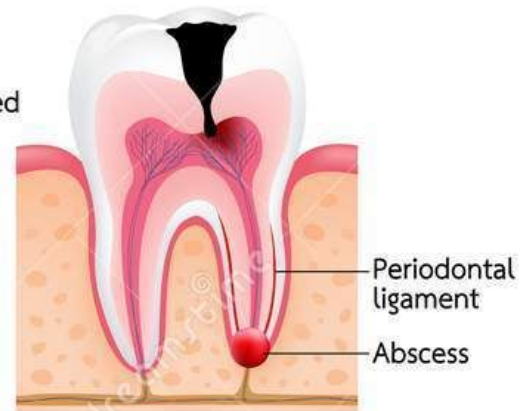
Enamel caries



Dentin caries



Pulpitis



Periodontitis



Methods

- Rapid Systematic Review
- 50 articles chosen through Pubmed, EBSCOHost, and Google Scholar
- Key Words
- Critical Appraisal

(Devenish, et al., 2020); (Kaya et al., 2018); (More et al., 2018)

Results

Table 1: Infants and study characteristics:

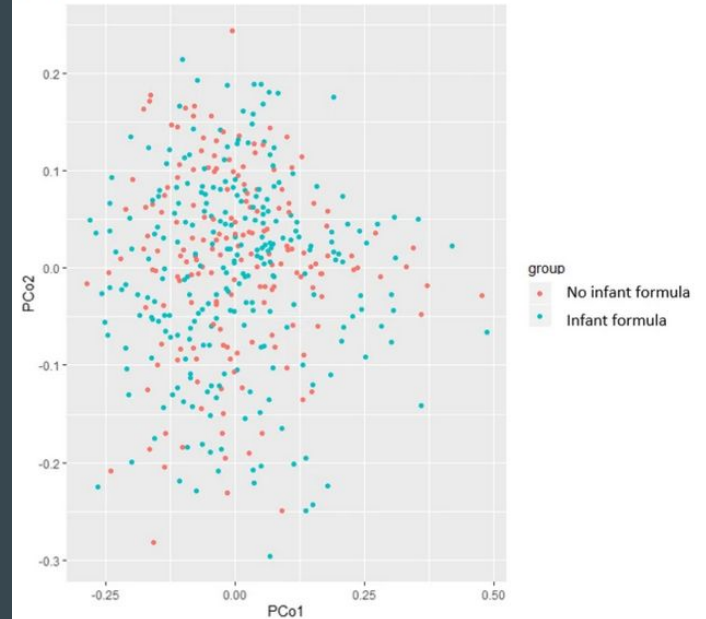
N	Author	Number of infants			Follow-up time (months)
		Total	Sufficiently breastfed group	Less sufficiently breastfed group	
1	<i>Du et al., 2000</i> [5]	426	392	34	47
2	<i>Slabšinskienė et al., 2010</i> [6]	950	131	819	36
3	<i>Tanaka & Miyake, 2012</i> [7]	2056	1640	416	17
4	<i>Nobile et al., 2014</i> [8]	487	242	245	71
5	<i>Piwat et al., 2020</i> [9]	469	312	157	37.5

#Studies arranged via publication year.

Table 2: Summary of outcome measures in all studies:

N	Author	Primary outcome	
		Incidence of dental caries	
		Sufficiently breastfed group	Less sufficiently breastfed group
1	<i>Du et al., 2000</i> [5]	136	17
2	<i>Slabšinskienė et al., 2010</i> [6]	119	356
3	<i>Tanaka & Miyake, 2012</i> [7]	340	85
4	<i>Nobile et al., 2014</i> [8]	42	50
5	<i>Piwat et al., 2020</i> [9]	254	130

Fig. 2



Principal coordinate analysis (beta-diversity) for the saliva microbiota according to type of feeding (P - value = 0.881)

Discussion

- Breastmilk
 - Protective barrier from bacteria
 - Mineralization of teeth
 - Higher percentage of sugar
 - Often performed in higher frequencies
- Formula
 - Efficient growth, development, and nutrient balance
 - Beneficial supplements: fluoride, casein, vitamin D, iron
 - Other additives promote mineral loss: sucrose and corn syrup

(Kaya et al., 2018)

Conclusion

- Breast milk prevents bacteria
 - Less bacteria = less caries
- Crucial for Dental Professionals
 - Informative to potential patients
 - Preventative measures
 - Dental caries most common chronic disease in children
- Helpful for patients
 - Dental caries 100% preventable
 - Caries caused by *Streptococcus mutans*

(More et al., 2018)