

The Cariogenic Effect of Nutritional Drink Supplements in Children and Youth with Special Health Care Needs – A Retrospective Cohort Study

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Objective

• To compare the dental health outcomes of children and youth with special health care needs (CYSHN) who consume nutritional drink supplements (NDS) with those who do not

Purpose

• The current literature on the association of NDS consumption in CYSHCN and dental disease is limited
• NDS contain high levels of fermentable carbohydrates, are viscous with a low pH, and have limited calcium/phosphate buffering capacity. While NDS have shown impact on oral health in adult patients, their effects in children remains unclear.

Methods

• Retrospective cohort study
• Data extracted from electronic health records with manual data extraction and review for accuracy

Inclusion Criteria

• Complex care patients (0-6yrs old) who received dental treatment using general anesthesia between 2021-2025, with had a nutritional consult encounter within 2 years

General anesthesia visit data

• Treatment completed:
• Diagnostic only (exam/radiographs)
• Restorative treatment (restorations/crowns)
• Extractions
• Calculus

Complex Care Clinic Nutrition Consult data

• Feeding modality (tube fed, by mouth, combination)
• Nutritional drink supplement consumption (Y/N):
• Name, modality of consumption, sugar content, volume, frequency
• Dietary Behavior
• Snacking and frequency
• Consumption of milk or juice/sugar-sweetened beverages
• Oral intake with standard meal patterns
• Multivariable analyses to assess association between nutrition variables and dental outcomes

Among patients who eat by mouth, those who consume **NO nutritional drink supplements** experienced **more restorative treatment** compared to those who consume nutritional drink supplements.

Among patients who eat by mouth, those who consume **nutritional drink supplements** experienced **more extractions** compared to those who do not consume nutritional drink supplements.

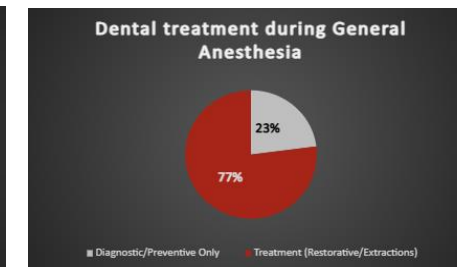
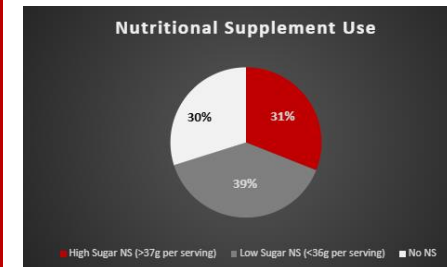
Oral consumption of nutritional drink supplements might play a role in caries severity in CYSHCN

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Results

- N = 87
- Tube-fed patients had roughly 6–7 times higher odds of calculus compared with those in other groups ($P=0.0047$), also with increased likelihood of diagnostic/preventive-only treatment in GA ($P < 0.001$)
- The number of fillings/crowns was significantly higher in orally-fed patients not taking NDS, compared with orally-fed patients taking NDS ($P=0.022$)
- To the contrary, the number of extractions was significantly higher in orally-fed patients taking NDS, compared with orally-fed patients not taking NDS ($P=0.11$)
- Orally-fed patients not taking NDS were 2x more likely to consume juice/SSB and milk than those taking NDS ($P=0.002$)
- No significant associations were found between snacking frequency in groups of orally-fed patients, with or without NDS



Discussion

- The route of nutritional supplement beverage intake impacts caries risk
- More collaboration is needed between oral health providers and nutritionists
- Nutritional drink supplements consumed orally may impact dental disease progression and severity of carious lesions

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