



Examining the acceptance and efficacy of Unflavored Toothpaste on plaque Reduction among Children with Autism Spectrum Disorder

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INTRODUCTION

- Autism Spectrum Disorder (ASD) is a developmental disability impacting social interaction, communication, and behavior.
- Children with ASD often experience challenges with oral hygiene, including heightened sensory sensitivities that may impact their ability to tolerate flavored toothpaste.
- This study evaluates whether using an unflavored toothpaste improves plaque control by making brushing more tolerable and effective.

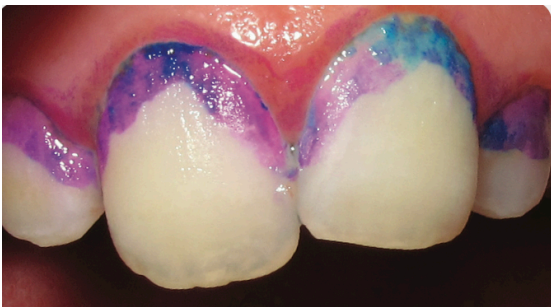
PURPOSE

This study evaluates unflavored toothpaste effectiveness in reducing plaque in individuals with ASD. Eligibility (score ≥ 1) is based on the Silness and Loe Index. After parental consent, a pre-intervention questionnaire assesses sensory profiles and oral hygiene practices.

METHODOLOGY

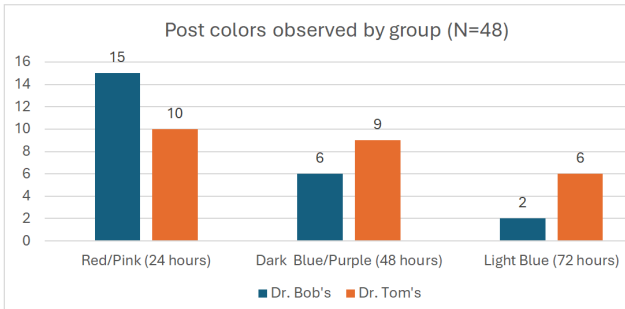
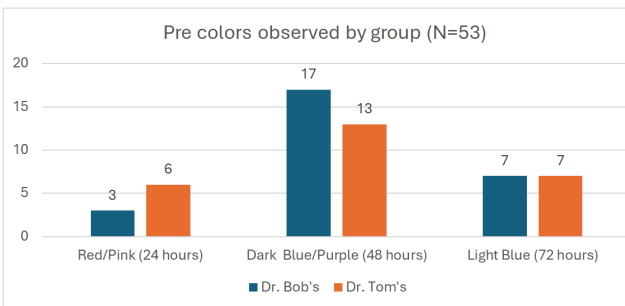
- **Study Design:** Randomized Controlled Trial that includes pre-intervention and post-intervention assessment
- **Participants:** Children aged 3 to 10 years of age diagnosed with ASD, recruited from Mailman Segal Dental Clinic with mild to severe plaque levels
- **Intervention:**
 - A pre-intervention assessment will be conducted using the Silness and Löe Plaque Index. Participants will then be randomly assigned to either the control group (Flavored toothpaste) or the experimental group (Unflavored Toothpaste). Each group will use the assigned toothpaste (Flavored or Unflavored) for a specific period of time. After the intervention period, a post-intervention assessment will be performed.
- **Data Collection:**
 - Plaque grade assessments using GC Tri Plaque ID Gel™ before and after intervention
 - Brushing duration recorded to assess changes in brushing habits
 - Caregiver pre and post intervention surveys to capture subjective feedback on the child's brushing experience
- **Data Analysis:**
 - Demographics and caregiver knowledge reported as frequencies and percentages
 - Plaque levels, brushing time, and compliance reported as means and standard deviations
 - Mixed ANOVA to compare changes in plaque levels between groups over time

DATA COLLECTION

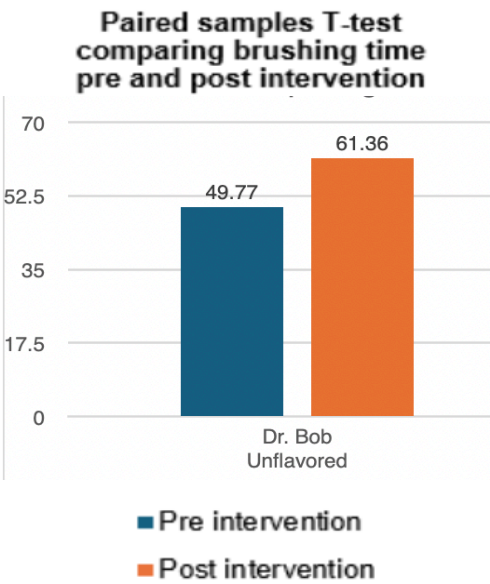
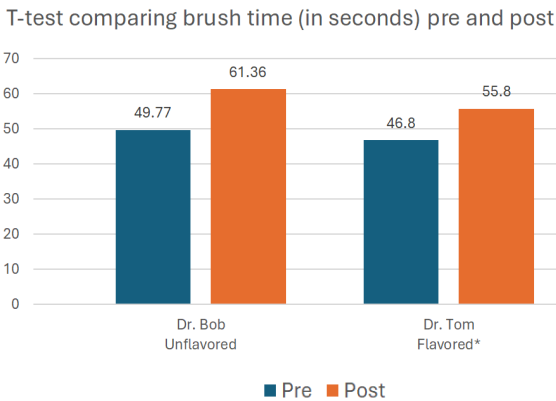


Plaque assessment based on using GC Tri Plaque ID gel -allowing visualization of plaque accumulation in different colors
-Red/Pink : New plaque, Dark
-Blue/Purple : Mature plaque, and
-Light Blue : Acid producing plaque

RESULTS



- **At pre-intervention**, caregivers report a mean brushing time of 48.46 seconds (SD=29.50); with a range of 15-120 seconds. At pre-intervention assessment plaque biofilm appeared predominantly blue/purple than pink/red
- **At post-intervention**, a greater number of caregivers reported improvement of their child's brushing habits (N=35; 72.9%), more than half following intervention reporting their child enjoys brushing more (N=25; 52.1%). After completion of intervention, the mean brushing time was 58 seconds (SD=40.96, Range=15-120 seconds)



RESULT DISCUSSION

Discussion

This study explored whether using unflavored toothpaste could improve oral hygiene behaviors in children with autism spectrum disorder (ASD). While the results did not reach statistical significance, there was a noticeable trend suggesting that unflavored toothpaste may support better brushing habits, including longer brushing time and slight plaque reduction.

Caregivers demonstrated solid awareness of their child's brushing routines both before and after the intervention, indicating that product changes alone may not impact caregiver knowledge. However, children in the unflavored toothpaste group showed greater increases in brushing duration, hinting that reduced sensory input could encourage better cooperation.

Feedback from caregivers was encouraging—over half observed their child enjoyed brushing more, and the majority noted improved brushing techniques. These outcomes are consistent with existing research, which highlights how taste and texture sensitivities can interfere with oral care in children with ASD.

Although limited by a small sample size, the study's findings suggest unflavored toothpaste may offer a sensory-friendly alternative to improve oral hygiene experiences in this population. Larger-scale studies are recommended to validate these results and guide future care strategies.

CONCLUSIONS

The goal of this study is to investigate the barriers that traditional toothpaste can impose on effective hygiene practices for individuals with ASD. This study, though not statistically significant between the two groups, showed a **positive trend** from higher risk plaque to a lower risk plaque between pre-intervention and post-intervention assessments.

The positive trend is an indicator of a potentially viable resource for caregivers and practitioners can employ to aide the oral hygiene practices in this special needs population.

REFERENCES



ACKNOWLEDGEMENTS

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