



# Task Strip Utilization in Improving Oral Hygiene in Children with Autism Spectrum Disorder

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## INTRODUCTION

Children with Autism Spectrum Disorder (ASD) often experience challenges maintaining adequate oral hygiene due to communication difficulties, behavioral resistance, and sensory sensitivities. These challenges frequently lead to poor oral health outcomes, including increased plaque accumulation and higher risk for dental caries and periodontal disease. Visual pedagogy, including the use of visual task strips, is commonly used in applied behavior analysis (ABA) to teach daily routines to children with ASD. Task strips break down complex behaviors into manageable visual steps, improving compliance and learning. Although visual supports have been used successfully in educational and behavioral settings, limited research exists evaluating their effectiveness in improving oral hygiene outcomes in children with ASD. This study evaluated whether caregiver-guided visual task strips improved plaque levels in children with ASD over time.

## PURPOSE

The purpose of this study was to evaluate whether the use of a home-based visual task strip, combined with caregiver training, improves oral hygiene outcomes in children with Autism Spectrum Disorder (ASD).

### Specific aims included:

- 1- Evaluate changes in plaque levels over time
- 2- Compare plaque reduction between task strip users and treatment-as-usual controls
- 3- Assess whether visual task strips provide additional benefit beyond routine care

## METHODOLOGY

### Design and Setting

- Single-center, repeated-measures pilot study at the Mailman Segal Dental Clinic, a single-chair clinic specializing in desensitization visits for children with ASD.
- Yoked control study using a convenience sample.

### Sample

- Total participants: 34 children with ASD
- Intervention group: 19
- Control group: 15
- Age range: 3–11 years
- Mean age: 5.88 years (SD = 2.04)

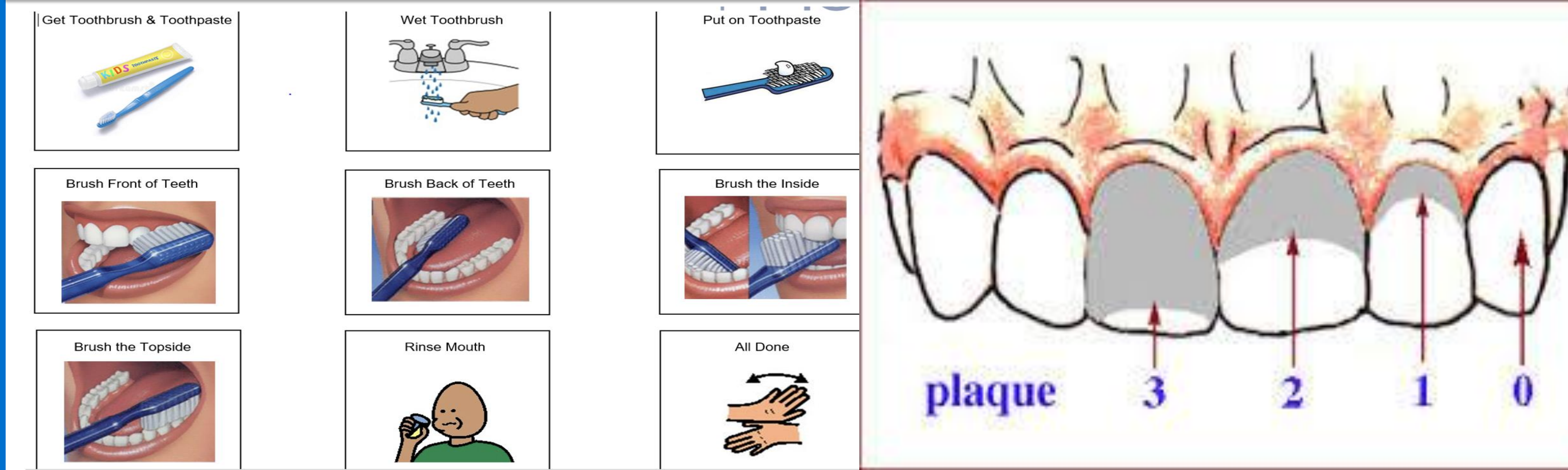
### Procedures

Baseline plaque scores were recorded using the modified Silness and Loe plaque index. Parents in the intervention group were trained by ABA therapists to use visual task strips. Parents used task strips at home to guide daily brushing. Plaque scores were recorded at: Baseline, 1-month follow-up, 2-month follow-up

### Statistical Analysis

One-way repeated measures ANOVA evaluated plaque change over time. Two-way mixed ANOVA evaluated group differences over time. Significance level set at  $p < 0.05$

## EXPERIMENTAL DEVICE



### Visual Task Strip Used in the Study

The series of pictures guided the children at home to perform the brushing method. The task strip that parents got for home is shown below:

### Silness- Loe Plaque Index representation

## RESULTS

### Patient Demographics

Total participants: 34

Male: 30 (88.2%)

Female: 4 (11.8%)

Race Distribution:

White: 58.8%

African American: 23.5%

Multiracial: 8.8%

Unknown: 5.9%

American Indian: 2.9%

Hispanic Ethnicity:

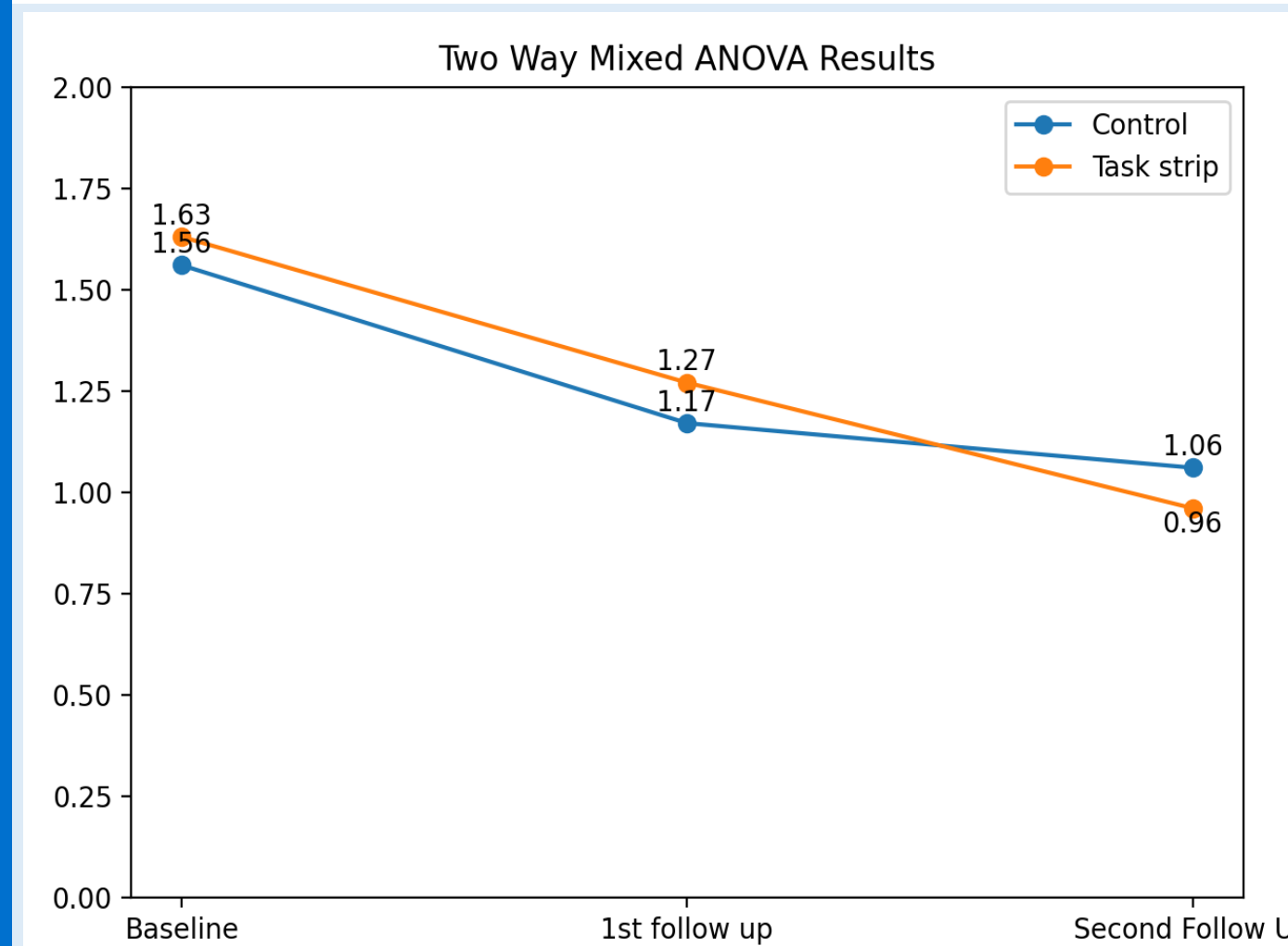
Yes: 55.9%

No: 23.5%

Not reported: 20.6%

### Patient Demographics

	n	%
<b>Gender</b>		
Male	30	88.2
Female	4	11.8
Total	34	100
<b>Race</b>		
African American	8	23.5
White	20	58.8
American Indian	1	2.9
Unknown	2	5.9
Mixed	3	8.8
Total	34	100
	<b>Mean ± SD</b>	<b>Range</b>
Age (years)	5.88 ± 2.02	3-11
Hispanic ethnicity	More than half reported (N=19; 55.9%).	



### Statistical Findings

A one-way repeated measures ANOVA demonstrated: Significant reduction in plaque over time  $F(2,60) = 15.99, p < 0.001$

Post-hoc comparisons showed:

Significant reduction from baseline to 1 month

Significant reduction from baseline to 2 months

No significant difference between 1 month and 2 months

## RESULTS

### Mean Plaque Scores by Treatment Condition

	Experimental Group: Use of Task Strip	Control Group: Treatment as Usual
Baseline	1.63	1.56
1st Follow-up	1.27	1.17
2nd Follow-up	0.96	1.06

### Group Comparison Results

A two-way mixed ANOVA showed: No significant group-by-time interaction  $F(2,58) = 0.50, p = 0.62$   
No significant overall group effect  $F(1,29) = 0.012, p = 0.91$   
This indicates plaque decreased over time in both groups regardless of task strip use.

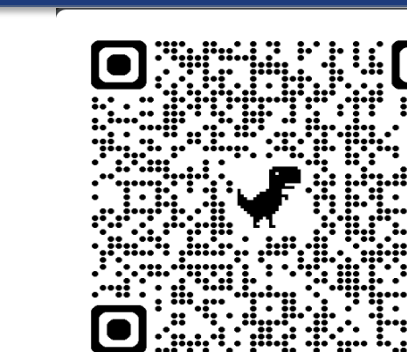
## CONCLUSIONS

Plaque scores decreased significantly over the 2-month period in children with Autism Spectrum Disorder (ASD), indicating overall improvement in oral hygiene behaviors over time. Improvements were observed in both the task strip and treatment-as-usual groups, suggesting that caregiver involvement and repeated reinforcement may contribute to better plaque control. However, the visual task strip did not demonstrate a statistically significant additional benefit compared with treatment as usual. These findings suggest that visual task strips may still support structured home oral hygiene routines, and further research with larger sample sizes is recommended.

## FUTURE DIRECTIONS

Future studies should include larger samples and longer follow-up periods to better evaluate the long-term impact of visual task strips on oral hygiene outcomes in children with ASD and determine which patients benefit most.

## REFERENCES



## ACKNOWLEDGEMENTS

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