

# Successful non-sedation completion of extensive restorative treatment in an autistic child; a stepwise behavioral adaptation



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## Abstract

**Purpose:** To demonstrate the feasibility of completing extensive restorative dental treatment without sedation in a pediatric patient with Autism Spectrum Disorder (ASD) using a structured, stepwise behavioral adaptation protocol.

**Methods:** A 7-year-old female with ASD (Level 1) presenting with multiple carious lesions and significant dental anxiety was managed over eight visits across three months. A non-pharmacologic approach incorporating systematic desensitization, Tell-Show-Do communication, positive reinforcement, environmental modifications, and active caregiver involvement was implemented. Treatment was introduced progressively, beginning with familiarization and preventive care, followed by staged restorative procedures based on behavioral readiness. Patient cooperation was assessed using the Frankl Behavior Rating Scale.

**Results:** The patient successfully completed comprehensive restorative treatment, including restorations, pulpotomies, stainless steel crowns, and extractions, without the use of sedation or physical restraint. Behavioral cooperation improved steadily from Frankl score 1 (definitely negative) at baseline to score 4 (definitely positive) at the final visit. Increased tolerance to dental procedures and reduced anxiety were observed throughout the treatment course.

**Conclusions:** This case supports the effectiveness of individualized, non-pharmacologic behavioral strategies in managing dental care for children with mild to moderate ASD. A structured desensitization protocol, combined with caregiver engagement and sensory adaptations, can facilitate successful completion of complex dental treatment while reducing reliance on sedation.

## Methods

A structured desensitization protocol was implemented over eight visits across three months to gradually acclimate the patient, build trust, and complete treatment without sedation. Initial visits focused on familiarization and preventive care, while later visits involved pulpotomies, stainless steel crowns, restorations, and extractions based on tolerance and behavioral readiness. Key strategies included a consistent clinical environment, sensory-friendly modifications, Tell-Show-Do communication, positive reinforcement, and active caregiver involvement.



Bitewing and periapical radiographs obtained on September 20, 2025 (initial visit), showing carious lesions in the maxillary and mandibular molars, along with primary molars exhibiting physiologic root resorption consistent with normal exfoliation.

## Results (Continued)

Session	Visit Objective	Activities Introduced	Duration (min)	Caregiver Role	Behavioral Outcome (Frankl Scale)
1	First visit	Consultation, Dental Examinations, Radiographs	30	Present, provided comfort cues	1
2	Preventive care	Toothbrushing demonstration and professional fluoride varnish	30	Advised mom to provide consistent motivation at home before the next visit	2
3	First restorative exposure	Short procedure—Occlusal restoration with sealant on a mandibular molar. No use of Local anesthesia	30	Provided sensory support (hand-holding, verbal praise)	3
4	Expanded restorative work-Quadrant restorative session	Pulpotomy of #K with placement of Stainless steel crown, Extraction of #L	45	Continued modeling calm	2
5	Quadrant restorative session Continued	Two surface restorations on #I, #J. Stainless steel crown placed on #J	50	Assisted with communication	3
6	Quadrant restorative session Continued	Occlusal restoration of #30, Stainless steel crown on T, Extraction of #S	50	Assisted with communication	3
7	Quadrant restorative session Continued	Occlusal restoration of 3, Stainless steel crown on #A		Assisted with communication	4
8	Review & recall appointment	Full prophylaxis, fluoride, oral hygiene instruction	40	Participated in reinforcement plan	4 (definitely positive)

## Introduction and Background

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by differences in communication, sensory processing, and behavior, often making dental care challenging. Children with ASD frequently experience heightened anxiety, difficulty adapting to new environments, and limited tolerance for dental procedures, leading many providers to rely on sedation or general anesthesia (American Academy of Pediatric Dentistry, 2024; American Academy of Pediatrics, 2001; Stein et al., 2012). The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) categorizes ASD into Levels 1-3 based on support needs, with children at Level 1 (requiring support) often demonstrating the greatest potential for success with behavioral guidance.

While sedation can facilitate immediate care, it does not address underlying behavioral and sensory barriers (Wilson et al., 2014; Nelson et al., 2019). Non-pharmacologic strategies such as systematic desensitization, gradual exposure, positive reinforcement, and environmental modification can improve cooperation and reduce anxiety over time (Shapira et al., 2020). This case highlights the successful use of a structured, stepwise behavioral adaptation protocol to complete extensive restorative treatment in a child with ASD Level 1 without sedation, emphasizing the value of individualized, patient-centered care.

A 7-year-old female with Autism Spectrum Disorder (ASD Level 1) presented with pain during mastication and multiple carious lesions across all quadrants. She had previously been referred for treatment under sedation due to significant dental anxiety. Clinical assessment revealed a verbal but anxious child with sensory sensitivity and limited tolerance for unfamiliar environments. Despite caregiver concerns, a comprehensive treatment plan was developed using a behavioral management approach, emphasizing gradual desensitization and active caregiver involvement instead of sedation.

## Results

This case demonstrates the effectiveness of a structured desensitization and behavior-modification protocol in accomplishing comprehensive restorative treatment in a pediatric patient who initially presented with severe dental anxiety and limited tolerance for intraoral procedures. Although this patient had previously been considered a candidate for hospital-based general anesthesia, she was ultimately able to complete all indicated care in a conventional dental clinic using non-pharmacologic behavioral strategies. This outcome aligns with a growing body of literature suggesting that, for select patients, systematic desensitization can significantly reduce reliance on sedation or general anesthesia in pediatric dentistry. Evidence-based behavioral techniques including Tell-Show-Do, positive reinforcement, sensory adaptation, and consistent provider continuity, were key to reducing anxiety and improving cooperation. Environmental modifications and active caregiver involvement further supported progressive behavioral improvement, reflected in increasing Frankl scores from negative to definitely positive behavior.

The progressive improvement in the patient's behavior as reflected in increasing Frankl scores supports the effectiveness of multi-session desensitization. Similar longitudinal improvements have been documented in studies where children gradually advanced from non-invasive to invasive procedures only when behaviorally ready (Wilson et al., 2017). By the final visits, the patient demonstrated "definitely positive" behavior and independently accepted complex treatments that would typically require pharmacologic intervention in anxious children.

## Conclusions and Future Directions

A multi-session, structured behavioral desensitization approach enabled successful completion of extensive restorative dental care in a child with ASD and high dental anxiety without sedation. Gradual exposure, consistent provider continuity, sensory-friendly modifications, positive reinforcement, and caregiver participation were key factors in improving cooperation and reducing fear. This case reinforces that non-pharmacologic behavior guidance can prove effective in carefully selected pediatric patients, without the use of sedation or general anesthesia, and supporting more individualized and patient-centered dental care.

## References

- American Academy of Pediatric Dentistry. (2024). *Behavior guidance for the pediatric dental patient. The Reference Manual of Pediatric Dentistry*, 408–424.
- American Academy of Pediatrics, Committee on Children With Disabilities. (2001). *Technical report: The pediatrician's role in the diagnosis and management of autistic spectrum disorder in children. Pediatrics*, 107(5), e85.
- Shapira, J., Cahan, S., & Aissi, R. (2020). *Behavioral techniques for managing dental anxiety in children with autism spectrum disorder. International Journal of Paediatric Dentistry*, 30(3), 1–9.
- Stein, L. I., Polido, J. C., Najera, S. O., & Cermak, S. A. (2012). *Oral care experiences and challenges in children with autism spectrum disorders. Pediatric Dentistry*, 34(5), 387–391.
- Wilson, S., Houpt, M., & Phillips, C. (2014). *Long-term outcomes of dental sedation: A review. Journal of Dentistry for Children*, 81(3), 125–131.