An Application of a Response Interruption and Redirection (RIRD) Procedure on the Independent Toileting Behavior of a 16 year old student with Autism

Shannon M. Walters, MA, BCBA, LBS
The Vista School

Nora M. Healy, MA, BCBA
The Vista School

Kirsten L. Yurch, MA, BCBA, LBS
The Vista School

Introduction

Using a response interruption and redirection (RIRD) procedure (Ahearn, Clark, MacDonald, & Chung, 2007), a treatment team replicated previous success in reducing repetitive gross motor movements and subsequently reduced urine accidents for a nonverbal, 16 year old student diagnosed with autism and intellectual disability. Results suggest that the repetitive gross motor movements and urine accidents constituted a functional class. Prior to any RIRD intervention, Justin demonstrated extremely high rates of repetitive gross motor movements (e.g., taps on surface) and voided small amounts of urine frequently (an average of 9.4 times a day) throughout the school day. Intervention began first for repetitive gross motor movements during instructional sessions due to the level of interference. The RIRD intervention was replicated with urine accidents due to a lack of success during a more traditional toilet training (TT) intervention (Aulin & Foss, 1971). Clinical observations lead investigators to hypothesize urine accidents and repetitive gross motor movements to comprise a functional class. Based on this hypothesis, the toilet training protocol shifted to replicate the previously successful RIRD intervention.

Methods

Participants and Setting

All treatment sessions occurred in the middle school building at The Vista School; an Approved Private School for individuals with moderate to severe autism ages 3-21. Results reflect intervention with one student, a 16 year old male with autism (Table 1).

Table 1

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender</th>
<th>VAIBS</th>
<th>GARS2</th>
<th>Co morbidity Diagnoses</th>
<th>Mode of Interfering Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Male</td>
<td>29</td>
<td>85</td>
<td>-LS</td>
<td>-ADHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-ADD</td>
<td>-Enuresis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-Mild</td>
<td>-Seizure disorder (grand mal)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-Receptive language disorder</td>
<td>-Anger or fighting behavior (towards others or objects)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-Runs away from instructional area or instructor</td>
</tr>
</tbody>
</table>

Baseline.

Toilet training baseline included the use of a liquid sensor attached to underwear, no increased hydration was applied due to the already high volume of voids observed, and accidents resulted in minimal staff attention and routine changing of soiled clothing (no additional positive or negative consequences were applied).

Toileting Procedures.

Severe toilet training component procedures were implemented following baseline:

- Prompted at set intervals to request the bathroom (approx. every 19 minutes).
- Positive practice for accidents.
- Reduced activities and remained close proximity of bathroom.
- Reinforcer delivered following all prompted and spontaneous requests that resulted in urination in the toilet.

Toilet training behaviors were unaffected by the toilet training procedures (Aulin & Foss, 1971), as shown during Phase 1 in Figure 1. A hypothesis to combine accidents and repetitive movements into one functional class resulted in RIRD procedures combined with TT procedures in Phase 2.

Procedures:

Previous Treatment History: RIRD procedures previously found successful at reducing repetitive gross motor movements during instruction and walking with staff (Figure 1) were applied to specific toileting behaviors following unsuccessful intervention based solely upon more traditional toileting procedures.

RIRD procedures formerly found successful include:

- Paired visual cue to indicate the expectation for instructional responses to be performed without impaired repetitive gross motor movements.
- A firm verbal interruption, “Justin, you need to work” combined with staff pointing to the visual cue.
- A direction to continue with the current task, restoring back at the beginning of the task, if applicable.

Phase 2: RIRD + Toileting Procedures.

The additional RIRD components were added after 8 days in Phase 1 in response to a worsening data picture. A DRA procedure was used with the following RIRD procedures:

- Immediate vocal interruption of all urine accidents, combined with staff pointing to the visual cue, in conjunction with the current DRA interval being restarted and the isolated reinforcer being withheld.
- A paired visual cue was used to indicate the appropriate time and place urinating is expected (i.e. only on the toilet).

Results

Once the RIRD intervention began, urine accidents decreased from an average of 9.4 times a day during a 5 day baseline period, to 0.4 times a day (measured during the last 5 days of Phase D).

Currently, Justin receives no prompts to the bathroom, independently and accurately requests the bathroom when he needs to urinate, and remains dry 90% of days across a 43 day maintenance and generalization period.

Figure 1. Two graphs representing Justin’s improvements in repetitive gross motor movements in response to RIRD procedures.

Figure 2. Chart depicting frequency of urine accidents during baseline, traditional TT procedures and RIRD + TT procedures.

Generalization and Maintenance: RIRD and TT procedures failed.

- Systematic reintroduction of the isolated reinforcer from only being delivered contingent on toileting behavior to only for programmatic responses.
- Incremental and systematic reintroduction to all activities (outdoor activities, gym class, swimming).
- Decreased the frequency of dry pants checks until discontinued.
- Decreased the quantity of fluids consumed across the day.
- Duration of the DRA interval was gradually increased until it was combined with the dry checks and then completely faded.

RIRD procedures were faded to only a quick verbal interruption and verbal redirection if an accident would occur.

Acknowledgements

With great admiration and gratitude, we would like to thank all the staff at The Vista School for their excellent implementation of a very intensive and structured program that helped Justin progress on his path to living a fulfilling and independent life.

Discussion

After making numerous modifications to a traditional toileting procedure with no success, Justin’s team hypothesized his frequent urine accidents were part of the same functional response class as his repetitive gross motor movements. Based on this hypothesis, the team successfully replicated previous successes using a RIRD program within his toileting program. Despite this intervention requiring high intensity implementation and staff consistency, it proved very successful in significantly decreasing urine accidents, eliminating all prompts to use the bathroom while also increasing Justin’s spontaneous requests.

Limitations

- Procedures implemented with only a single participant, results have limited extension to other individuals.
- Procedural design weaknesses include lack of comparison or reversal procedures.
- Component analysis would need to be completed to isolate those variables most responsible for success.
- RIRD procedures may have worked regardless of accidents and motor movements constituting a functional class.

Selected References


