

**NJABA Article Review**  
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**Article Title:** A comparative analysis of toilet training procedures recommended for young children

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**Why study this topic?**

Toilet training interventions frequently consist of a combination of treatment strategies implemented simultaneously in a treatment package. Because of this, it is difficult to determine which treatment strategies are showing the most effect and which are potentially unnecessary. Including unnecessary treatments in an intervention package can waste learner time and increase trainer effort. The purpose of the current study was to evaluate the combined and sequential effects of toilet training strategies utilized in early childhood centers. The researchers conducted an add-in component analysis to evaluate the separate and combined effects of three common toilet training package components (a dense toileting schedule, wearing of underwear instead of a diaper, and differential reinforcement of appropriate elimination) on toilet training success.

**What did the researchers do?**

The participants in the study were twenty children, 19-39 months of age, who were not yet toilet trained. Nineteen participants were typically developing children. One participant was diagnosed with autism spectrum disorder. The setting was a university-based early childhood education center. Teachers utilized their classrooms to implement toilet training procedures. Teachers at the center exposed participants to either a specific toilet training package that included all three training components simultaneously or exposed them to separate components, introduced sequentially, until performance improved.

The three training components were wearing underwear in place of diapers, a dense toileting schedule (30 minutes), and differential reinforcement of appropriate elimination. Underwear only was implemented for four children after baseline. Participants wore cotton underwear instead of diapers or pull-ons. Participants remained in the underwear throughout the day, including nap periods. The dense toileting schedule component was implemented for four children after baseline. In this procedure, the teacher would prompt the child to sit on the toilet every 30 minutes. Each sit on the toilet lasted approximately three minutes or until the child appropriately eliminated in the toilet. The differential reinforcement component was implemented for four children following baseline. Participants who were dry at clothing checks and eliminated in the toilet received preferred items. These items were selected from multiple stimulus without replacement preference assessments conducted weekly.

The independent variable was the toilet training component or package implemented. The three dependent variables were toileting accidents, elimination in the toilet, and

independent requests. A non-concurrent multiple baseline design across subjects was utilized. To evaluate the effectiveness of a single training component, researchers staggered the implementation of the training package across participants until the response stabilized. To evaluate the effectiveness of adding training components, the teachers added each component sequentially until the performance improved for each participant.

### **What did researchers find?**

Six children received the combined toilet training package following baseline. Implementation of the combined procedure showed clear improvements in overall toileting performance for two of six participants. The underwear-only component was implemented with four participants following baseline. Improvements in toileting targets for two of four participants were noted. The dense toileting schedule was implemented for four participants. The results indicate that it did not improve toileting skills for any participant. Differential reinforcement was implemented for four participants. Differential reinforcement alone did not produce overall improvement in toileting skills for any participant.

A total of twelve children participated in a component analysis condition where each of the three components was initiated sequentially. Underwear was implemented as the second or third component for a total of six participants. Introduction of underwear resulted in increases in appropriate eliminations for four participants. Differential reinforcement was implemented as the second or third component for five participants. The introduction of differential reinforcement, to the wearing underwear, resulted in an increase in appropriate eliminations for three participants.

### **What were the strengths and limitation of the study? What do the results mean?**

A strength of the study was the use of the add-in component analysis method. This allowed the researchers to analyze the effects of each intervention in isolation and in combination. Through this analysis they were able to conclude that just the introduction of underwear in place of diapers had some effect on behavior in the absence of any other treatment component. Unfortunately, the data were unable to indicate why the underwear had an effect. Narrative reports from the teachers suggested some reasons. Potentially, the aversive feeling of wet or soiled clothing, which was prevented by diapers, functioned as positive punishment for the accidents. Another potential reason was related to how accidents were responded to. In response to an accident, the participant was immediately removed from a classroom activity in order to be changed. The removal from preferred activities may have functioned as negative punishment for accidents. Classroom teachers also observed that participants had strong preferences for specific underwear (e.g., cartoons, superheros, animals).

A limitation identified in the study was the overall response effort to implement toilet training procedures. Teachers reported that the dense toileting schedule and underwear components required the most response effort. The dense schedule required teachers to spend a lot time in the bathroom with participants. The underwear component required teachers to frequently change clothing throughout the school day. Both components

required a significant amount of time taken away from classroom responsibilities. Due to increased effort, these procedures may not be implemented consistently by all trainers. An additional limitation is the potential that the dense toileting and reinforcement schedule prevented the acquisition of independent requests to eliminate. Across all conditions, independent initiations were not obtained. A lack of initiation to use the bathroom decreases overall independence and therefore caregiver satisfaction in the training results. The researchers also mentioned that they did not evaluate prerequisite skills prior to the initiation of toilet training. This could have resulted in differential responding to components across participants.

**Citation**

Greer, B. D., Neidert, P. L., & Dozier, C. L. (2016). A comparative analysis of toilet training procedures recommended for young children. *Journal of Applied Behavior Analysis, 49*, 69–84.