Gönül Kırcaali-İftar [1]
Burcu Ülke-Kürkçüoğlu [2]
Özlem Çetin [3]
Emre Ünlü [4]

# Intensive Daytime Toilet Training of Two Children with Autism: Implementing and Monitoring Systematically Guarantees Success!*

*Abstract*

*Teaching toileting skills are among the most essential educational objectives for children with autism; however, there are few investigations of the utility of various toilet training approaches for this population of children. The intensive toilet training program presented in this report used the scientifically supported principles of applied behavior analysis (ABA) to teach two 5- and 3-year old boys with autism to stay accident free between scheduled toilet visits. The program consisted of pre-training, intensive training, and post-training activities. The children attained day-time toileting skills rapidly and consistently throughout the program. The procedures followed during these activities and the outcomes regarding each participant are presented in the report.*

*Keywords: Intensive toilet training, daytime toilet training, children with autism, toileting problems.*

## Introduction

Independent toileting is a critical quality of life skill because it facilitates community life and improves a sense of self-confidence (Cicero & Pfadt, 2002). The acquisition of toileting skills is delayed in children with developmental disabilities (DD), including

[1] *Ph.D., Professor Emeritus & Private Consultant, Istanbul, TURKEY*
[2] *Ph.D., Assistant Professor (Corresponding author), Research Institute for the Handicapped, Anadolu University, Eskisehir, TURKEY,[ bulkekurkcuoglu@anadolu.edu.tr ]*
[3] *Special Education Teacher, Research Institute for the Handicapped, Anadolu University, Eskisehir, TURKEY*
[4] *Research Assistant, Research Institute for the Handicapped, Anadolu University, Eskisehir, TURKEY*

* *The authors would like to thank the participants and their parents for their cooperation and patience during the conduct of the study. The authors would also like to extend their appreciation to Özlem Dalgın and Tayibe Badır for their assistance in data collection.*

autism spectrum disorders (ASD) and incontinence is more problematic because of diminished personal hygiene, physical discomfort, stigmatism, reduced self confidence and restriction from community activities (Cicero & Pfadt, 2002; Keen, Brannigan & Cuskelly, 2007; Kroeger & Sorensen-Burnworth, 2009; Luiselli, 1998). Therefore, toileting skills are among the most desired self care skills to teach children with DD. However, it usually is a very challenging experience to teach these skills for many teachers and parents.

A number of toilet training protocols have been implemented successfully to teach continence in individuals with DD (Kroeger & Sorensen-Burnworth, 2009). Many of these (Cicero & Pfadt, 2002; Keen et al., 2007; Kroeger & Sorensen-Burnworth, 2009; LeBlanc, Carr, Crossett, Bennett & Detweiler, 2005) have been derived from the intensive toilet training package developed by Azrin and Foxx (1971, 1974). However, further investigations are needed to examine the effects of such toilet treatment packages for children with ASD in order to better solve toileting problems (LeBlanc et al., 2005).

In the present study we adapted Lovaas (2003) daytime toilet training program which is based on the Azrin and Foxx (1971, 1974) toilet training protocol. This program teaches children to stay accident free between scheduled toilet visits by utilizing the scientifically supported principles of applied behavior analysis (ABA). The toilet training program of Lovaas consists of a minimum of 10 h of training in one day delivered via scheduled toileting format. The primary ABA principles utilized during training are positive reinforcement and overcorrection. Once the child learns to control his bladder, self-initiation is taught in the program as well.

Our protocol included two days of intensive training rather than one day. Furthermore, we implemented and monitored the pre-training activities systematically in order to gain insights regarding the intensive training days. The purpose of the current report is to present the pilot implementation process and outcomes regarding the above-mentioned toilet training program which consisted of pre-training, intensive training, and post-training activities with two children with autism.

## Method

### Participants

Two children were selected as participants according to two pre-requisites: receiving intensive behavioral intervention for at least six months and progressing on basic imitation, matching, and receptive language skills in the intervention program. Pseudonyms are used for the participants throughout the article. Berker and Omer were five year- and three-year-old boys with autism respectively. Berker received intensive early intervention at a university center while Omer received similar services at home in Turkey. Berker received instruction for four hours during week days on basic imitation, matching and sorting, receptive language, and Picture Exchange Communication System (PECS) programs when the toilet training was initiated. Berker had very limited communication skills and frequent oral-motor stereotypic behaviors. Omer received instruction for four hours during week days on basic imitation, matching, receptive

language, play, and incidental teaching when toilet training was initiated. He had limited expressive language skills.

Settings and Materials

The participants' teachers and mothers implemented the pre-and post-training activities collaboratively at both school and home for Berker but only at home for Omer. However, intensive training activities were conducted at each child's home by the teachers.

The following materials were needed for each participant for the study: a musical potty chair which played a flushing sound when the child wet the bowl and played a tune when the child stood up after using the toilet, a stool, pants, a timer, and forms to record toileting events. We offered a variety of favorite toys and activities, candies, and chocolate as reinforcers during intervention and salty snacks, sweets, water, water melon, juice, and soda to encourage urination during intensive toilet training. We also developed three forms to record the performances of children before and during toilet training: Pre-Training Form (Figure 1), Intensive Training Form 1 (Figure 2), and Intensive Training Form 2 (Figure 3).

*Figure 1.* Pre-Training Form used before the intensive training

| Date | Time | Diaper was clean | | Urinated into the toilet | | Defecated into the toilet | |
|---|---|---|---|---|---|---|---|
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |
| | | Y | N | Y | N | Y | N |

*Figure 2.* Intensive Training Form 1 which was used during Phase 1*

| Sitting on the Toilet | Urinating/Defecating | | Recessing | Accident Free | |
|---|---|---|---|---|---|
| 30 min. | Y | N | 5 min. | Y | N |
| 30 min. | Y | N | 5 min. | Y | N |
| 30 min. | Y | N | 5 min. | Y | N |
| 30 min. | Y | N | 5 min. | Y | N |
| 30 min. | Y | N | 5 min. | Y | N |
| 30 min. | Y | N | 5 min. | Y | N |
| 25 min. | Y | N | 7 min. | Y | N |
| 25 min. | Y | N | 7 min. | Y | N |
| 25 min. | Y | N | 7 min. | Y | N |
| 25 min. | Y | N | 7 min. | Y | N |
| 25 min. | Y | N | 7 min. | Y | N |
| 25 min. | Y | N | 7 min. | Y | N |
| 20 min. | Y | N | 10 min. | Y | N |
| 20 min. | Y | N | 10 min. | Y | N |
| 20 min. | Y | N | 10 min. | Y | N |
| 20 min. | Y | N | 10 min. | Y | N |
| 20 min. | Y | N | 10 min. | Y | N |
| 20 min. | Y | N | 10 min. | Y | N |
| 15 min. | Y | N | 12 min. | Y | N |
| 15 min. | Y | N | 12 min. | Y | N |
| 15 min. | Y | N | 12 min. | Y | N |
| 15 min. | Y | N | 12 min. | Y | N |
| 15 min. | Y | N | 12 min. | Y | N |
| 15 min. | Y | N | 12 min. | Y | N |
| 10 min. | Y | N | 15 min. | Y | N |
| 10 min. | Y | N | 15 min. | Y | N |
| 10 min. | Y | N | 15 min. | Y | N |
| 10 min. | Y | N | 15 min. | Y | N |
| 10 min. | Y | N | 15 min. | Y | N |
| 10 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |

**When the child receives 'Y' in both columns three times consecutively or receives 'Y' in the second column six times consecutively, the next step is initiated.*

*Figure 3.* Intensive Training Form 2 which was used during Phase 2*

| Sitting on the Toilet | Urinating/Defecating | | Recessing | Accident Free | |
|---|---|---|---|---|---|
| 5 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |
| 5 min. | Y | N | 15 min. | Y | N |
| | | | | | |
| 5 min. | Y | N | 20 min. | Y | N |
| 5 min. | Y | N | 20 min. | Y | N |
| 5 min. | Y | N | 20 min. | Y | N |
| 5 min. | Y | N | 20 min. | Y | N |
| 5 min. | Y | N | 20 min. | Y | N |
| 5 min. | Y | N | 20 min. | Y | N |
| | | | | | |
| 4 min. | Y | N | 20 min. | Y | N |
| 4 min. | Y | N | 20 min. | Y | N |
| 4 min. | Y | N | 20 min. | Y | N |
| 4 min. | Y | N | 20 min. | Y | N |
| 4 min. | Y | N | 20 min. | Y | N |
| 4 min. | Y | N | 20 min. | Y | N |
| | | | | | |
| 4 min. | Y | N | 25 min. | Y | N |
| 4 min. | Y | N | 25 min. | Y | N |
| 4 min. | Y | N | 25 min. | Y | N |
| 4 min. | Y | N | 25 min. | Y | N |
| 4 min. | Y | N | 25 min. | Y | N |
| 4 min. | Y | N | 25 min. | Y | N |
| | | | | | |
| 3 min. | Y | N | 25 min. | Y | N |
| 3 min. | Y | N | 25 min. | Y | N |
| 3 min. | Y | N | 25 min. | Y | N |
| 3 min. | Y | N | 25 min. | Y | N |
| 3 min. | Y | N | 25 min. | Y | N |
| 3 min. | Y | N | 25 min. | Y | N |
| | | | | | |
| 3 min. | Y | N | 30 min. | Y | N |
| 3 min. | Y | N | 30 min. | Y | N |
| 3 min. | Y | N | 30 min. | Y | N |
| 3 min. | Y | N | 30 min. | Y | N |
| 3 min. | Y | N | 30 min. | Y | N |
| 3 min. | Y | N | 30 min. | Y | N |

** When the child receives 'Y' in both columns three times consecutively or receives 'Y' in the second column six times consecutively, the next step is initiated.*

During the pre-training phase an adult took the child to the toilet once every hour saying 'Let's potty' and prompting Berker to touch his tummy whereas prompting Omer to say "Potty". Afterwards, the teacher removed the child's diaper and had him sit on the toilet for 3-5 min. While he was sitting on the toilet, she sang, played or engaged in other enjoyable activities to reinforce the child for sitting. If he urinated/defecated while sitting on the toilet, she provided positive reinforcement by delivering social and other kinds of reinforcers; if he did not, she had him get up saying 'OK, we can get up now' and put him in diaper. During the last two days of the pre-training phase the teacher took the child to the toilet once every half hour. She recorded the child's toileting performance on the Pre-Training Form (Figure 1) after each trial in order to monitor toileting patterns. During the hourly scheduled visits, the average number of visits per day was 15.5 and 11.1 for Berker and Omer respectively. These pre-training data provided information on how to adapt the Lovaas (2003) criterion on the durations of sitting on the toilet and the breaks between toilet sittings during intensive toilet training as described below.

Following the pre-training activities, we conducted an intensive toilet training that consisted of two phases. Intensive training occurred over one entire weekend and was implemented in the child's house by his teachers. Two teachers took turns about every three hours.

Phase 1 began when the child awoke in the morning on Saturday. He was taken to the toilet, his diaper was removed, and he was instructed to sit on the potty chair. We planned to have him sit on the toilet for 30 minutes or until he urinated/defecated by offering him food (e.g., salty snacks and sweets) and beverages (e.g., juice and soda) as well as enjoyable materials (e.g., laptop and puzzles) and activities (e.g., singing and playing finger games) while sitting. He was provided a 5-minute break when he urinated/defecated or when the 30-minute time period ended. He was free to move around the bathroom during the break. If he earned the break by urinating/defecating into the toilet, he was provided with social and other reinforcers. We kept his bottom undressed while he was at break and we did not let him leave the bathroom.

We gradually decreased the duration of sitting on the toilet and increased the duration of breaks as follows:

| *Sitting on the toilet* | *Breaks* |
|---|---|
| 30 min. | 5 min. |
| 25 min. | 7 min. |
| 20 min. | 10 min. |
| 15 min. | 12 min. |
| 10 min. | 15 min. |
| 5 min. | 15 min. |

The criterion for moving from one step to another was urinating/defecating into the toilet and staying accident free during breaks three times consecutively or staying dry during breaks six times consecutively. The latter was modified from Lovaas' criterion which required the child to stay accident free during breaks three times consecutively before

moving to the next step. This modification was based on the rather infrequent urination patterns observed during pre-training for both children.

Even one drop of urination was recorded positively during intensive training. We recorded the child's performance during each trial on the Intensive Training Form 1 (Figure 2). Berker completed Phase 1 and started Phase 2 at noon in the second day of intensive training whereas Omer did so during the evening of the second day.

In Phase 2, the child wore underwear and was allowed to leave the bathroom during breaks. Phase 2 had the following six steps:

| *Sitting on the toilet* | *Breaks* |
|---|---|
| 5 min. | 15 min. |
| 5 min. | 20 min. |
| 4 min. | 20 min. |
| 4 min. | 25 min. |
| 3 min. | 25 min. |
| 3 min. | 30 min. |

The criterion and behavioral procedures used in Phase 1 were followed in Phase 2 as well. When the child had an accident during Phase 2, the teacher applied a simple correction procedure (Cooper, Heron & Heward, 2007) when possible. For example, Berker wiped the floor for a short while. Berker did not refuse to do the correction although he looked as if he did not enjoy doing it. When Omer had an accident during Phase 2, the teacher said "no" but did not have him wipe the floor because Omer appeared to enjoy this activity.

## Results

The child's performance during each trial on Phase 2 was recorded on the Intensive Training Form 2 (Figure 3). Berker was at the fifth step of Phase 2 (sitting on the toilet for 3 min. and having a break for 25 min.) at the end of the two-day intensive toilet training. During Phase 1 he sat on the toilet 46 times, he urinated/defecated 20 times, and had five accidents; during Phase 2 he sat on the toilet 29 times, urinated/defecated 22 times, and had eight accidents. The day after intensive training, Berker attended school and his daily routine continued as always except going to the toilet once in every 25 min. His mother was advised to follow the same schedule when the child got home. The teachers decided whether or not he met the criterion to get to the next step by considering his toileting performance both at school and at home collaborating with the mother. Berker was able to complete Phase 2 on the fifth day following the intensive training weekend.

Omer was at the second step of Phase 2 (sitting on the toilet for 5 min. and having recess for 20 min.) at the end of the two-day intensive toilet training. During Phase 1 he sat on the toilet 36 times, he urinated/defecated five times, and he had one accident; during Phase 2 he sat on the toilet 27 times, urinated/defecated two times, and had two accidents. The teachers remained in his home until he slept at night. The teachers, in

collaboration with Omer's mother, decided whether or not he met the criterion to get to the next step by considering his toileting performance at home. He was able to complete Phase 2 on the second day following the intensive training weekend. Towards the end of the first week following Phase 2, Omer started to occasionally initiate to use the toilet by saying "potty".

During the post-training period, Berker's toileting performance was monitored at school and at home whereas Omer's toileting performance was monitored at home because he was receiving home intervention. The teachers gradually increased the duration of recesses by 5 min. in every three to four days. The criterion for increasing the duration between toilet visits was having no more than one accident for two consecutive days. In fact, Berker usually did not have more than two accidents per day and Omer did not have more than two accidents per week during the post-training period. Berker and Omer were visiting the toilet once in 45 min. and 40 min. respectively when summer break started.

One of Omer's teachers and Berker's mother monitored the children's toileting performances closely during the summer break. The teacher could not record Omer's visits to the toilet properly during summer break because they spent most of their time at the pool. Based on Omer's performance in general, the teacher increased the duration between the toilet visits once per two days. Omer was visiting the toilet once in 60 min. when he came back to school. According to his mother's records, Berker was taken to the toilet a mean of 18.5 times per day and urinated/defecated during about one third of these visits. He had only five accidents during the entire summer break. However, his mother adopted a more conservative criterion and increased the duration between the toilet visits when Berker had four to five accident free days consecutively. Hence, Berker was visiting the toilet once in 55 min. when he came back to school after the summer break. Towards the end of the first week following the summer break, he started to occasionally initiate to use the toilet by touching his tummy.

## Conclusion

The intensive daytime toilet training program described in this article was successful for two children with autism. The teachers and the mothers of the participants were very pleased to observe the children attaining toileting skills rapidly and consistently throughout the program. The authors believe that implementing the program systematically as well as monitoring the children's performances closely by keeping records was instrumental in the success of the implementations. Furthermore, the mothers' willingness to collaborate with the teachers might have contributed to the success of the program.

Some advantages as well as disadvantages of the current toilet training program are worthy of discussion. The primary advantage is that the program worked successfully for both children without major problems. On the other hand, the intensive toilet training activities were rather stressful for children, parents, and teachers. However, we believe that implementing the intensive training in two days rather than in one day,

implementing it at home, and implementing it by taking turns made this stressful event easier for all of them. The toilet training program outlined herein can be utilized by teachers and parents collaboratively to teach daytime toileting skills to children with ASD and other types of DD. Similar programs can be initiated and examined for night time bladder control and self-initiated toileting skills as well. However, such programs should be examined via experimental research efforts to reach efficacy and efficiency outcomes.

## References

Azrin, N. H., & Foxx, R. M. (1971). A rapid method of toilet training the institutionalized retarded. *Journal of Applied Behavior Analysis, 4*, 89-99.

Azrin, N. H., & Foxx, R. M. (1974). *Toilet training in less than a day.* New York: Pocket Books.

Cicero, F. R., & Pfadt, A. (2002). Investigation of a reinforcement-based toilet training procedure for children with autism. *Research in Developmental Disabilities, 23*, 319-331.

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2nd ed.). Upper Saddle River, NJ: Pearson.

Keen, D., Brannigan, K. L., & Cuskelly, M. (2007). Toilet training for children with autism: The effects of video modeling. *Journal of Development of Physical Disabilities, 19*, 291-303.

Kroeger, K. A., & Sorensen-Burnworth, R. (2009). Toilet training individuals with autism and other developmental disabilities: A critical review. *Research in Autism Spectrum Disorders, 3*, 607-618.

LeBlanc, L. A., Carr, J. E., Crossett, S. E., Bennett, C. M., & Detweiler, D. D. (2005). Intensive outpatient behavioral treatment of primary urinary incontinence of children with autism. *Focus on Autism and Other Developmental Disabilities*, *2*, 98-105.

Lovaas, O. I. (2003). *Teaching individuals with developmental delays: Basic intervention techniques.* Austin, Texas: Pro-Ed.

Luiselli, J. K. (1994). Toilet training children with sensory impairments in a residential school setting. *Behavioral Interventions*, *9*, 105-114.