Effects of a Weighted Vest on Attention to Task and Self-Stimulatory Behaviors in Preschoolers With Pervasive Developmental Disorders

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Objective. This study examined the effectiveness of using a weighted vest for increasing attention to a fine motor task and decreasing self-stimulatory behaviors in preschool children with pervasive developmental disorders (PDD).

Method. Using an ABA single-subject design, the duration of attention to task and self-stimulatory behaviors and the number of distractions were measured in five preschool children with PDD over a period of 6 weeks.

Results. During the intervention phase, all participants displayed a decrease in the number of distractions and an increase in the duration of focused attention while wearing the weighted vest. All but 1 participant demonstrated a decrease in the duration of self-stimulatory behaviors while wearing a weighted vest; however, the type of self-stimulatory behaviors changed and became less self-abusive for this child while she wore the vest. During the intervention withdrawal phase, 3 participants experienced an increase in the duration of self-stimulatory behaviors, and all participants experienced an increase in the number of distractions and a decrease in the duration of focused attention. The increase or decrease, however, never returned to baseline levels for these behaviors.

Conclusion. The findings suggest that for these 5 children with PDD, the use of a weighted vest resulted in an increase in attention to task and decrease in self-stimulatory behaviors. The most consistent improvement observed was the decreased number of distractions. Additional research is necessary to build consensus about the effectiveness of wearing a weighted vest to increase attention to task and decrease self-stimulatory behaviors for children with PDD.


Deep pressure, a form of tactile sensory stimulation, is believed to have a calming effect on adults and children with pervasive developmental disorders (PDD) (Edelson, Edelson, Kerr, & Grandin, 1999; Grandin, 1992; McClure & Holtz-Yotz, 1991). Deep pressure often is provided by holding, stroking, hugging, and swaddling (Grandin, 1992). Researcher have hypothesized that deep pressure calms children by modulating their central nervous system processing of sensory information (Grandin, 1992; McClure & Holtz-Yotz, 1991). Recently, occupational therapists have been using weighted vests (e.g., AliMed1, Sammons2, Therapy Skill Builders3) as an intervention modality to provide deep pressure while chil-

1AliMed, Inc., 2917 High Street, Dedham, Massachusetts 02026.
2Sammons Preston, 4 Sammons Court, Bolingbrook, Illinois 60440-4989.
3Therapy Skill Builders, 555 Academic Court, San Antonio, Texas 78204.
Children are engaged in routine daily activities; however, no studies were found in the literature that examined the effectiveness of using weighted vests as part of an intervention approach.

Limited evidence from anecdotal case studies indicate that deep pressure has an effect on attentional behaviors and reduces self-stimulatory behaviors in children with autism (Edelson et al., 1999; Joe, 1998; McClure & Holtz-Yotz, 1991; Zissermann, 1992). Joe (1998) reported that children with developmental disabilities and autism demonstrated a decrease in self-stimulatory behaviors, became less distractible, and demonstrated increased attention to a task while wearing weighted vests. McClure and Holtz-Yotz (1991) reported reduced self-stimulatory and self-injurious behaviors in one child with autism when deep pressure was applied to the upper extremities in the form of splinting and padding. Changes in behavior were based on reported observations from the hospital staff. The child exhibited an increased ability to interact with others, a calmer behavioral state, and an apparent strong desire to wear the pressure materials. Zissermann (1992) observed an 11.8% decrease of instances of self-stimulatory behavior when a child with autism wore bilateral long arm gloves made from support pantyhose. Data were compared based on observations of self-stimulatory behaviors when the pressure garments were applied and removed.

Edelson et al. (1999) reported on a pilot study that supports the use of deep pressure with children with autism. The experimental group used a hug machine to administer deep pressure evenly across the lateral parts of the body, and a placebo group did not apply deep pressure. The results indicated a significant reduction in behavioral indicators of anxiety and a marginal reduction in physiological indicators of anxiety in the experimental group.

Children with PDD, which includes autism, often engage in self-stimulatory behaviors and have difficulty attending to tasks. Severe impairment in social interaction skills and communication, with the presence of stereotyped behaviors (e.g., repetitive, stereotyped mannerisms such as rocking, twirling, spinning, arm flapping, tapping, and squinting) interfere with their ability to attend to tasks and learn (American Psychiatric Association, 1994; Lovaas, 1981, 1987). Attention is a state that reflects a person’s receptivity to information and occurs because a task needs to be accomplished (Ruff & Lawson, 1991). Kientz and Dunn’s (1997) comparison of children with and without autism revealed that 75% of their subjects with autism had difficulty paying attention. Self-stimulation is a major problem that often interferes with attention to a task. King and Grandin (1990) suggested that self-stimulating behaviors may be the child’s attempt to calm and modulate his or her arousal level during times of general overarousal. Additionally, Lovaas (1987) found that the children’s attention problems appear worse when they self-stimulate.

A child’s inability to adequately modulate sensory input manifests itself as either a lack of responsiveness or an exaggerated reaction to sensory stimulation (Ayres & Tickle, 1980; Kimball, 1999; Ornitz, 1985). Ayres and Tickle (1980) concluded that children with autism have difficulty registering sensory stimuli. Research on children with PDD indicates that they prefer and often seek out sensory stimulation (e.g., sounds, visual stimuli, touching, being sandwiched between mats) (Ayres, 1987; Kootz, Marinelli, & Cohen, 1981). Some treatment approaches for behaviors associated with PDD have been based on the use of general sensory stimulation to modulate sensory information processing (Ayres, 1987; Dunn & Fisher, 1983). A slow, steady application of pressure has been reported to have a calming effect on a person, whereas sudden, jerky motions tend to cause hyperarousal (Grandin, 1992).

The study presented here resulted from personal observations in a clinical setting. Although it is common practice for occupational therapists to use weighted vests to provide deep pressure stimulation to children with PDD, to date minimal research has been conducted to examine the effects of this practice. Accordingly, this study systematically examined the effects of wearing a weighted vest on attention to task and self-stimulatory behaviors of 5 preschool children with PDD.

Method
The single-subject ABA reversal design (Kazdin, 1982; Ottenbacher, 1986) was selected to examine the effects of wearing a weighted vest on attention to task and self-stimulatory behavior of five preschool children with PDD. This design allowed for systematic measurement of individual changes in each participant with and without the weighted vests. The study was conducted within a self-contained classroom that included 6 children, 1 teacher, and 6 assistants; 5 of the 6 children participated in the study. Each child in the classroom worked one on one with an assistant. All participants were observed at a table during a fine motor task for 15 sessions over a 6-week period.

Participants
The 5 participants ranged from 2 years to 4 years of age, were diagnosed with PDD, had reported difficulties in attention to task, and were not currently being treated with a weighted vest. Participant 5 had been further diagnosed with autism. Participant 1 had been treated with a weighted vest for a short time 1 year before the study. All participants attended a 5-day-a-week preschool program in New York City for 3 hr each day. The program used an applied behavioral analysis approach for behavior management (Lovaas, 1987). All participants received speech and occupational therapy services. The consent procedure required that a letter be sent to all of the parents whose children attended the applied behavioral analysis program and had been diagnosed with PDD. Parents who were interested in having their child participate in the study returned a signed consent form.
consent form to the classroom teacher and were assured that assent procedures would be followed. Five consent forms were returned. The study was approved by the New York University Office of Sponsored Programs, University Committee on Activities Involving Human Subjects, and the appropriate personnel in the institution where the data were collected.

Participant 1 was a 2-year, 7-month-old girl who was the smallest of all the participants, weighing 25.5 lb. At the time of this study, she was nonverbal and required assistance to walk. Her mother and teacher were concerned about her decreased attention span. Observations confirmed that Participant 1 engaged in the self-stimulatory behaviors of biting, staring at her hands, and repetitive verbal humming. She avoided eye contact and seldom responded to a play object. She would repeatedly throw herself out of her chair and push objects off the table when required to participate in fine motor activities.

Participant 2 was a 2-year, 10-month-old boy who weighed 32 lb. During baseline observations, he engaged in a few self-stimulatory behaviors (hand biting, perseverative verbal humming and singing). Although he remained seated at the table with minimal cuing, his teacher reported that he needed his attention to be redirected continuously when attempting fine motor activities. He was observed to be easily distracted by background auditory sounds and needed to be constantly redirected to do fine motor activities.

Participant 3 was a 3-year, 1-month-old boy who was the largest of all the participants, weighing 37 lb. His mother reported that he was active and preferred gross motor activities to fine motor tasks. His teacher reported that he required continuous prompts and redirection to get him to engage in fine motor activities. During observations, he appeared to become frustrated easily and have a tantrum or walk away from the table when the activity became difficult. When engaged in an activity, Participant 3 would look away from the task toward auditory and visual stimuli. He often twirled objects, rolled his eyes, repetitively clicked his tongue, and sang the same phrases. He responded to his name with brief eye contact that he could not sustain.

Participant 4 was a 2-year, 9-month-old girl who weighed 33 lb. Both her teacher and mother were concerned about her lack of play skills and her inability to attend to fine motor activities. During observations, she repeatedly engaged in self-stimulatory behaviors of rocking, twirling and tapping objects, and repetitive verbal chanting when a fine motor activity was presented. Distractible behaviors observed included recurrent tantrums, throwing herself on the floor, and frequently turning her head away from the direction of the activity. She also directed her attention toward background noises and visual stimuli. If not physically prompted to remain seated at the table, she would get out of her chair and move around the room.

Participant 5 was a 2-year, 10-month-old boy who weighed 27 lb. He demonstrated spontaneous eye contact and verbalized simple phrases when he wanted something. He voluntarily sat at the table and appeared to enjoy fine motor activities; however, he did not play appropriately with the materials. When presented with a fine motor activity, he repetitively twirled the task materials and required his attention to be redirected toward the activity. He also continuously turned his head to visual and auditory stimuli. He would occasionally engage in verbal and oral self-stimulation.

Procedure

A measurement procedure was developed to record the duration of focused attention to task, number of distractions, and duration and type of self-stimulatory behaviors during a 5-min fine motor activity. Duration of focused attention to task was measured by recording the length of time a child looked at and simultaneously engaged in some deliberate manipulation of fine motor objects or materials related to the activity (Ruff & Lawson, 1991) within the 5-min period. The number of distractions was the number of times the participant turned his or her head or eyes away from the task within a 5-min interval. Finally, the type and the summed duration of self-stimulatory behaviors observed within a 5-min period were recorded. Self-stimulatory behaviors were defined as a variety of repetitive, stereotyped mannerisms, such as rocking, spinning objects, twirling, arm flapping, gazing, tapping, hand biting, flicking ears, crossing eyes, rolling eyes, squinting, or repetitive and monotonous vocalizations (Lovaas, 1981).

The fine motor activities observed in these children were part of the applied behavioral analysis program. The children were familiar with the activities presented during the data collection. Activities included scribbling and imitating crayon strokes, building with blocks, imitating block patterns, putting pegs into a pegboard, stringing beads, snipping with scissors, and pointing to objects.

The first author collected all data. Another rater measured the behaviors on three occasions during the baseline phase of the study to ensure that data were collected in a reliable and consistent manner. Interobserver agreement on attending and self-stimulatory behaviors was determined by comparing the scores of the first author with the second rater using the frequency formula described by Kazdin (1982). Interobserver agreement for the number of distractions was 100%. The interobserver agreement was 97% for duration of focused attention to task and duration and type of self-stimulatory behaviors.

Intervention Protocol

Because a published protocol for the use of weighted vests was unavailable, anecdotal reports from colleagues and Wilburger’s (1995) brushing protocol suggested that
weighted vests were most effective when worn for 2 hr and then removed for 2 hr before being worn again. This protocol was also consistent with Takagi and Kobayasi’s (1955) animal studies, where it was determined that an initial surge in arousal before calming occurred when deep pressure was worn for 2 hr. A multipocketed denim vest sized to fit each participant was used for this study. Each weighted vest contained four pouches—two in the front and two in the back—with a .25-lb weight in each pouch (The Kiddie Vest™). During the intervention phase (B), the first author or the teacher put the weighted vests on the children shortly after they arrived at school in the morning and were worn for 2 hr. The applied behavioral analysis programs continued as usual throughout the school day.

Data Collection

Before data collection, the participants’ teachers and therapists were informed of the nature of this study. They were encouraged to keep the existing therapy programs consistent throughout the duration of this study and inform the researcher if any changes occurred. This study consisted of three phases: initial baseline phase (A), intervention phase (B), and intervention withdrawal phase (A). The observations and data collection for all phases occurred while the participants were engaged in a structured fine motor activity in the classroom with their teacher. Three separate 5-min observation periods for each participant were used to record the three measures investigated in this study. Accordingly, three observation sessions, one for each measure, per participant, and per phase, resulted in a total of nine observation periods for each participant across all phases. A timer was used to mark the 5-min intervals. The number of distractions were recorded on the data sheet and totaled at the end of the 5-min interval. A stopwatch was used to record the summed total duration of focused attention and self-stimulatory behaviors. The time of day for data collection for each participant remained consistent throughout the study.

The initial baseline measures for the number of distractions, duration of focused attention, and duration of self-stimulatory behaviors were taken in the baseline phase (A). Initial baseline observations for all 5 participants began within a 48-hr period. Participants were observed 3 days each alternating over a 5-day period for the 1st week and 2 days each alternating over a 4-day period for the 2nd week. Within 2 weeks, baseline data were collected for all 5 participants on all three measures.

Data collection for the intervention phase (B) began in the 3rd week of the study. The weighted vests were worn three times a week for a 2-week period. Data were collected after the participant had worn a weighted vest for 1.5 hr. During the final 2 weeks of the intervention phase, data collection was staggered for three times over a 4-day period for the 3rd week and two times in the 4th week for a total of five sessions.

Intervention was discontinued in the 5th week of the study, the intervention withdrawal phase (A), and the weighted vests were not worn during the final 2 weeks of the study. Data collection for the intervention withdrawal phase was collected in same manner as in the baseline and intervention phases. Data collection was staggered, with each participant observed five times during the 5th and 6th week for a total of five sessions.

Data Analysis

The duration of focused attention, the number of distractions, and the duration of self-stimulatory behaviors were recorded on the data collection sheets. Data for each session were graphed separately for each participant using Microsoft Excel for Windows 95 (Microsoft Corporation, 1995) throughout the three phases of the study. Data analysis included the visual inspection of the slope, height, and direction of the trend line for each phase and the calculation of mean performance for each of the three measures per phase (Ottenbacher, 1986).

Results

Figure 1 includes three graphs that document duration of focused attention, number of distractions, and duration of self-stimulatory behaviors for Participant 1 for each 5-min observation. Focused attention to task, with a mean of 55.4 sec in the baseline phase, increased during the intervention phase (M = 66.8 sec) and decreased in the intervention withdrawal phase (M = 43.4 sec). Number of distractions, with a mean of 27.4 during the baseline phase, decreased substantially during the intervention phase (M = 11.2) and increased in the intervention withdrawal phase (M = 15.8).

Duration of self-stimulatory behaviors, with a mean of 16.6 sec in the baseline phase, increased in the intervention phase (M = 22.2 sec) and increased again during the intervention withdrawal phase (M = 38.4 sec).

Figure 2 represents the data taken for Participant 2. Focused attention to task, with a mean of 84.6 sec during the baseline phase, increased during the intervention phase (M = 97.6 sec) and declined in the intervention withdrawal phase (M = 64 sec). Number of distractions, with a mean of 17.6 during the baseline phase, decreased during the intervention phase (M = 7.2) and increased during the intervention withdrawal phase (M = 10.4). Duration of self-stimulatory behavior, with a mean of 8.2 sec in the baseline phase, decreased in the intervention phase (M = 5.2 sec) and increased in the intervention withdrawal phase (M = 22.4 sec).

Figure 3 represents the data for Participant 3. Focused attention to task, with a mean of 115 sec in the baseline phase, increased in the intervention phase (M = 140 sec) and decreased in the intervention withdrawal phase (M = 105.8).
Figure 1. Duration of focused attention, number of distractions, and duration of self-stimulatory behaviors for Participant 1.
Figure 2. Duration of focused attention, number of distractions, and duration of self-stimulatory behaviors for Participant 2.
Figure 3. Duration of focused attention, number of distractions, and duration of self-stimulatory behaviors for Participant 3.
Figure 4. Duration of focused attention, number of distractions, and duration of self-stimulatory behaviors for Participant 4.
Figure 5. Duration of focused attention, number of distractions, and duration of self-stimulatory behaviors for Participant 5.
sec). Number of distractions, with a mean of 17.2 during the baseline phase, decreased during the intervention phase ($M = 7.2$) and increased during the intervention withdrawal phase ($M = 11.2$). Duration of self-stimulatory behaviors, with a mean of 17.6 sec in the baseline phase, decreased during the intervention phase ($M = 8.6$ sec) and increased in the intervention withdrawal phase ($M = 10.2$ sec).

Figure 4 represents data for Participant 4. Focused attention to task, with a mean of 65.4 sec in the baseline phase, increased in the intervention phase ($M = 101.8$ sec) and decreased during the intervention withdrawal phase ($M = 10.2$ sec). Number of distractions, with a mean of 17.4 in the baseline phase, decreased in the intervention phase ($M = 6.8$) and gradually increased during the intervention withdrawal phase ($M = 9.6$). Duration of self-stimulatory behavior, with a mean of 227.6 sec in the baseline phase, decreased in the intervention phase ($M = 99$ sec) and decreased further during the intervention withdrawal phase ($M = 78.5$ sec).

Figure 5 represents data for Participant 5. Focused attention to task, with a mean of 95.2 sec in the baseline phase, increased in the intervention phase ($M = 131.8$ sec) and decreased during the intervention withdrawal phase ($M = 92.2$ sec). Number of distractions, with a mean of 14.2 in the baseline phase, decreased during the intervention phase ($M = 3.8$) and increased during the intervention withdrawal phase ($M = 5.2$). Duration of self-stimulatory behavior, with a mean of 61.6 in the baseline phase, decreased during the intervention phase ($M = 19.2$ sec) and remained low during the intervention withdrawal phase ($M = 16.2$ sec).

Visual analysis of Figures 1 through 5 supports the clinical observation that a weighted vest had a positive effect on at least two measures of attention for all 5 participants. The participants appeared less distractible and demonstrated fewer self-stimulatory behaviors. All showed an increase in the duration of focused attention while wearing a weighted vest, although the extent that a weighted vest influenced duration of focused attention varied among them. The mean value for the duration of focused attention during the intervention phase for Participant 2 would have been greater if not for a gap in the data for session 10, a day when he went home ill. A weighted vest appeared to have the greatest impact on duration of focused attention for Participants 4 and 5 as well as on decreasing substantially the duration of their self-stimulatory behaviors.

The increase in the duration of focused attention that occurred during the intervention phase was not sustained when a weighted vest was removed. All 5 participants demonstrated a decrease in duration of focused attention during the intervention withdrawal phase; however, the duration of focused attention to task was less in the intervention withdrawal phase than in the initial baseline phase. After a weighted vest was removed, 4 participants demonstrated abrupt decreases in the duration of focused attention. This abrupt change was revealed through visual inspection of the data at session 11 (the first session in which data were collected after the removal of a weighted vest). Although this information strengthens the support for the use of a weighted vest to increase duration of focused attention, it does not provide support for long-term effects once a vest is removed.

All the participants demonstrated a decrease in the number of distractions while wearing a weighted vest. Although distractibility varied among them, a weighted vest had the greatest impact on this measurement of attention to task. The most notable decrease in the number of distractions occurred for Participant 1 who was the smallest of the participants in this study. This finding could be an indication that the larger participants would have benefited from more weight in the vest. Although the number of distractions increased in the intervention withdrawal phase, this number never returned to the initial baseline values. This result may suggest that a weighted vest has some lasting effects, although the greatest effects were demonstrated during the intervention phase while the vest was worn.

It is also worth noting the immediate impact that a weighted vest had on the number of distractions. Visual inspection of Figures 1 through 5 demonstrate an abrupt drop in the number of distractions during the first session of the intervention phase for all participants. Participants 3 and 4 also demonstrated an abrupt decrease in the number of distractions in the fourth session. Participants 2, 3, 4, and 5 all displayed the lowest number of distractions during the fourth session. This finding may be important because data during the fourth session were collected after a weekend. One tentative explanation for this finding may be that the participants became accustomed to wearing the weighted vest after 3 days during the first week, thus reducing the vest’s purported effects on decreasing distractibility. Further, the novelty of wearing the vest again after a weekend without wearing it may have renewed its initial effects on decreasing the number of distractions.

Four participants demonstrated a decrease in the duration of self-stimulatory behaviors while wearing a weighted vest. Participant 4, who during the initial baseline phase displayed the greatest frequency and duration of self-stimulatory behaviors, demonstrated the greatest reduction during the intervention phase. A weighted vest did not appear to have much of an impact on the duration of self-stimulatory behaviors for Participant 1, although the nature of the self-stimulatory behaviors changed and became less self-abusive for this child. While wearing a weighted vest, Participant 1 demonstrated less hand biting and no longer engaged in twirling objects, but the hand-staring behaviors increased.

On removal of a weighted vest, self-stimulatory behaviors increased for all participants. Although Participants 3, 4, and 5 demonstrated an increase in the duration of self-
stimulatory behaviors during the intervention withdrawal phase compared with the intervention phase, this increase did not reach initial baseline levels.

Parents and teachers reported positive effects of a weighted vest. The classroom teacher indicated that Participant 1 was able to remain in her seat for longer periods while wearing the vest and that Participant 2’s tantrums appeared to increase when the study was over. Two teachers reported that Participant 3 showed a decrease in aggressive behavior while wearing the weighted vest and an increase in aggressive behaviors during the period after it was removed. Informal observations and documentation from the teachers who worked with Participant 4 revealed a reduction in self-stimulatory behaviors during fine motor activities. The teachers and parents of Participant 5 reported an improvement in upright sitting posture while wearing a weighted vest.

The decrease in the duration of self-stimulatory behaviors, drop in the number of distractions, and an increase in the duration of focused attention suggest that a weighted vest may be an effective intervention tool for clinicians, teachers, and parents of children with PDD. The observed changes in behavior (i.e., fewer aggressive episodes, self-stimulatory behaviors, and tantrums) are clinically significant. The reduction of these behaviors can improve the child’s activity performance and participation in the classroom, community, and home.

Discussion
A weighted vest appeared to be beneficial for clinical use with 5 children with PDD who had difficulty attending to tasks and who exhibited self-stimulatory behaviors. The results of this study support parent and clinician observations that wearing a weighted vest produced calming effects and positive changes in attending behaviors for these children. However, additional research is necessary to establish more specific guidelines for intervention.

Questions arose about the amount of weight to use in the vest in relation to the children's weight. An association between the proportion of weight of the child and the effects of a weighted vest was apparent. For example, all participants' vests were weighted the same, and yet the smallest participant demonstrated the greatest decrease in the number of distractions.

The abrupt changes in behaviors and increased attention to task that occurred after a weekend may be related to the children being in a calmer, more structured environment after a possibly unstructured weekend at home. It is also important to note that Participant 4 demonstrated an increase in duration of focused attention that was accompanied by an increased duration of self-stimulatory behaviors. This latter finding may suggest that engaging in self-stimulatory behaviors may have supported or influenced the greater degree of focused attention demonstrated by Participant 4.

The results from this study cannot be generalized to a larger population because it was conducted with a small number of participants in one particular context. We suggest that a longer data collection period be used in future research. The addition of another intervention phase and a longer withdrawal phase could be useful in better determining lasting effects once a weighted vest is removed. On the basis of visual inspection of the data graphs, no positive latent effects were found from a weighted vest during the intervention withdrawal phase for duration of focused attention; however, beneficial latent effects in relation to the number of distractions were apparent. We also suggest that interobserver agreement be examined in all phases of the study to control for observer drift. Because of constraints in time and resources for the first author, interobserver agreement could only be examined during the baseline phase of this study.

One limitation of this study was the use of an ABA instead of a multiple baseline design because some behaviors did not exhibit reversibility or did not return to the baseline after the intervention phase (Kazdin, 1998; Ottenbacher, 1986). Based on clinical experience and with no contrary literature to state otherwise, we believed that the behaviors would return to baseline. Despite this design limitation, the results suggest positive outcomes from the use of a weighted vest for increasing the duration of attention to task and decreasing the number of distractions. Additional research is necessary to build a consensus about the effectiveness of wearing a weighted vest to increase attention to task and decrease self-stimulatory behaviors. Replicating this study in other contexts or examining other guidelines for the use of a weighted vest can do this.

Conclusion
The results from this single-subject study provide preliminary support for the use of the weighted vest with children with PDD who have difficulty attending to tasks and exhibit self-stimulatory behaviors. All participants exhibited a decrease in the number of distractions and an increase in focused attention while wearing the weighted vest. All but one participant demonstrated a decrease in the duration of self-stimulatory behaviors while wearing the vest. Additional research is needed to examine further the effectiveness of wearing the weighted vest to increase attention to task and decrease self-stimulatory behaviors.

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