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Exploring the Impact of Adaptive Seating in Increasing On-Task Behavior in Students with Autism

Background

Autism is a diagnosis that affects about 1 in 36 children in America (CDC, 2023). School based occupational therapists work with students with autism to help them access and participate in their educational environment. Sensory processing disorder is a common comorbidity to autism that makes it challenging for one to filter environmental stimuli, leading to difficulty sustaining attention and participating in everyday school tasks. Ashburner et al., found that sensory processing difficulties are associated with academic underachievement. Adaptive seating can be used to help regulate sensory systems and facilitate in-seat behavior in students with autism (Schilling and Schwartz, 2004). To further understand the impact adaptive seating has in increasing on-task behavior in students with autism, data was collected and analyzed after the implementation of adaptive seating in 3 elementary age students with autism.

Methods

3 elementary age students with autism and sensory processing disorder were observed in their typical classroom environment. One student was observed sitting in a standard chair in their classroom while the other two students were observed sitting on a rocking chair and a T stool during instruction for three 10-minute sessions. Behavior was recorded using a behavior observation form. The behavior observation form measures frequency of off-task behavior and considers the following actions as off task: talking out, out of seat, staring, touching others, playing with objects, looking around, fidgeting, redirected.

Adaptive seating was selected for each student based off observed behavior, classroom environment, and individual sensory needs by using clinical reasoning and available resources. Prior to data collection, all three students had trialed sitting on a Theraball during classroom

instruction but were found to be unsafe and a distraction to their peers, therefore, Theraballs were excluded from this intervention. TheraBand tied around chair legs was recommended for all three students, as all students were found to have high movement and proprioceptive sensory needs. TheraBand can be tied around the legs of a standard desk chair to give students proprioceptive input by providing a place for them to kick or bounce their legs while seated.

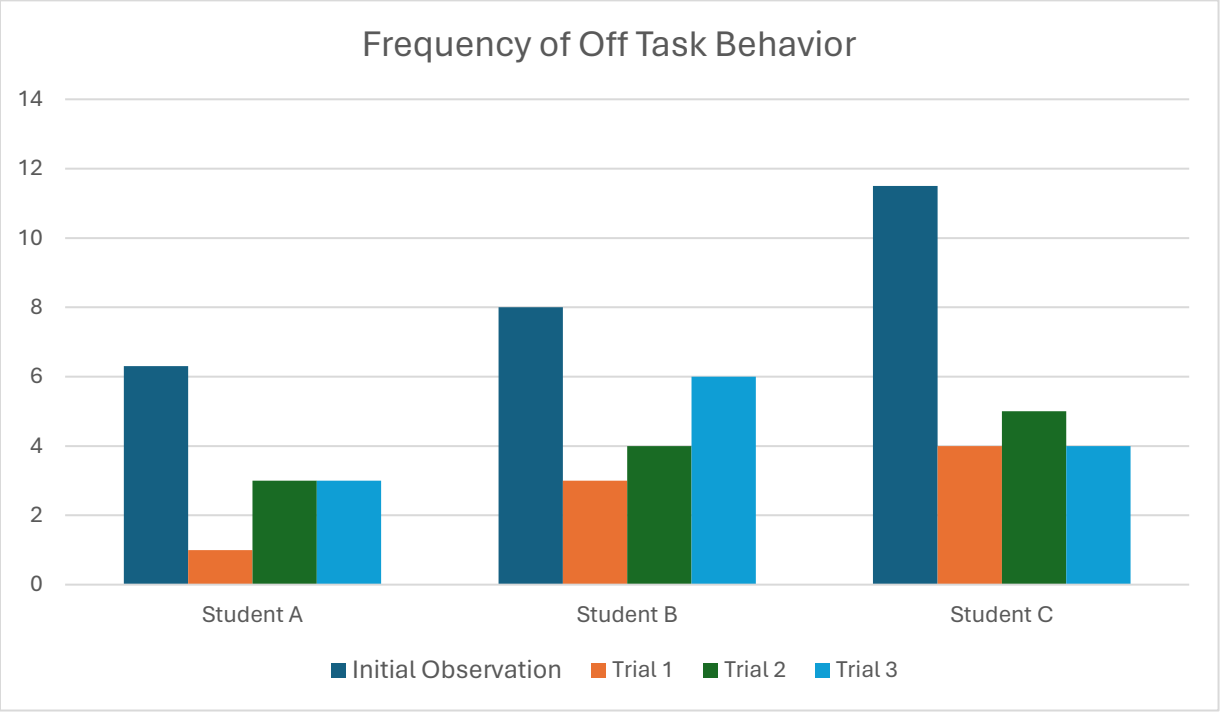
Each student was individually introduced to their new seating modification and the seating was implemented in their classroom. The students were then observed for 3 ten-minute increments using the behavior observation form over the course of 2 weeks during preferred and nonpreferred tasks. Each student's teacher was informally interviewed and was asked 1. If they had noticed a change in the student's behavior since the implementation of adaptive seating and 2. If they had noticed an increase in attention since the implementation of the intervention. The students were asked if they liked their adaptive seating and were given the option to continue or discontinue the seating at the end of the data collection period.

https://yumstheraplay.com/2023/01/classroom-seating-options-for-students-who-struggle-sitting-still/

Results

Overall, adaptive seating was shown to decrease off-task behaviors as well as stereotype behaviors in students with autism. Each student was observed to appropriately utilize adaptive seating to meet movement and sensory needs. However, adaptive seating was not shown to increase learning or facilitate independent task initiation in the students. Intrinsic motivation, level of instructional support, nature of the task, and executive functioning skills are still major contributing factors that impact a student's ability to independently initiate and sustain tasks.

Teachers reported that they did not notice major changes in attention after the implementation of adaptive seating, but they did notice a change in in-seat behavior including increased time in chair and decrease in stereotype behaviors (physical and verbal stimming). The students reported that they liked adaptive seating, and 2 out of 3 students opted for adaptive seating over traditional classroom seating when given the choice. 1 student did not prefer the recommended adaptive seating but preferred sitting on a t-stool that was available in his classroom versus traditional seating.



Conclusion

Generally, adaptive seating decreased off-task behavior in students with autism and was found to be preferred by the students over traditional seating. Students increased their time in seat and arousal level; however, they were not found to independently initiate and sustain tasks.

Implication for OT practice

Adaptive seating is not a one size fits all approach. Each student has individual sensory needs and adaptive seating needs to be customized to each student. Adaptive seating was shown to decrease off-task behavior; however, this did not correlate to increased on-task behavior. The students were not noted to independently initiate and sustain tasks after the implementation of seating, with the exception of preferred tasks. These findings suggest that there are extraneous factors that contribute to on-task behavior. Adaptive seating is an accessible and cost effective intervention to trial to meet a student's sensory needs. However, it might be more effective when used in conjunction with other interventions i.e. adaptive seating and 1:1 support, etc. Though adaptive seating has been proven to be an evidence-based intervention to increase on-task behavior, further research is required to differentiate the findings between increasing on task behavior and in seat behavior.

Appendix

Behavior Observation Form

+ = on task - = off task

30 sec Intervals	:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10	Total
Instruction **W** - whole group **S** - small group **I** - independent **O** - one-on-one																					
Student																					
Control																					
Talking out																					
Out of seat																					
Staring																					
Touching others																					
Playing with objects																					
Looking around																					
Fidgeting																					
Redirected																					

Comments:

References

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