



Effectiveness of Cutting Activity on Precision And Prehension Skills In Children With Autism

Rakshita nirwan¹, Prof (Dr.) R. K Sharma², Dr. Chhavi Kalra³, Dr. Pooja Kaushik⁴

¹MOT (Pediatrics) Student, Santosh Occupational therapy College, ²Dean, Paramedical, Principal Santosh Occupational Therapy College Ghaziabad, ³Assistant Professor (Neurology), ⁴Assistant Professor (Pediatrics)

***Corresponding Author:** Rakshita nirwan, Prof (Dr.) R. K Sharma

¹MOT (Pediatrics) Student, Santosh Occupational therapy College, ²Dean, Paramedical, Principal Santosh Occupational Therapy College Ghaziabad

Abstract

The purpose of the study was to investigate the effectiveness of cutting activity on enhancement of precision and prehension skills in children with autism.

Study design: Experimental design.

Participants: 30 subjects were selected of age range between 5 to 8 years with mild autism.

Methods: Participants were assessed 1 week prior to the intervention on Children's Cutting Skills Observation Sheet Instrument. Subjects were divided equally into Group A (Experimental group) and Group B (Control group). The intervention protocol was of 8 weeks having 2 sessions of treatment per week. Group A received 30 minutes of conventional occupational therapy followed by the 15 minutes session of paper cutting treatment. Each paper cutting activity was of 3 minutes. Total duration of the session received by Group A is of 45 minutes. Group B received 45 minutes of conventional occupational therapy. Post assessment was done after 1 week of the intervention protocol. Then data was analysed statistically.

Result: For both the control and experimental groups, the p-values exceed the 0.05 level of significance ($p > 0.05$). This indicates that the null hypothesis cannot be rejected; the mean values in the experimental group showed more substantial improvements in precision and prehension skills compared to the control group. This suggests that structured cutting activities can positively impact the development of these skills in children with autism.

Conclusion: Post-assessment mean values for the experimental group were significantly higher, indicating substantial progress in their cutting skills, though the p-value indicated the changes were not statistically significant. Therefore, integrating pattern cutting exercises into therapeutic programs could be beneficial for enhancing motor skills, eye and hand coordination skills in children with autism. And as the sooner the child is introduced to the cutting activities or scissors use hence it stimulates their development as this impacts their performance in the school as they grow up.

CC License

Keywords: Autism spectrum disorder; cutting activity; precision and

INTRODUCTION

Autism spectrum disorder (ASD), comprises of a multitude of illnesses that represent a variety of deficiencies, the most well-studied of which being autism. Autism spectrum disorders are categorized as stereotypical behavior, interests, and hobbies are prevalent among ASDs, as well as significant and complicated deficits in reciprocal social interaction and communication abilities¹. State that children's motor development can be well-shaped and trained at the preschool age. It has been proven that engaging kids in arts and crafts and busy board activities improves their motor abilities. The skill that is hard to master in early childhood is fine motor skill. One skill that involves tool manipulation, like cutting can be particularly difficult for children to acquire if they weren't exposed to cutting activities at a young age. However, if kids are given the correct tools and assistance, they can overcome the challenges of cutting. One area where children have difficulty with cutting is when it comes to applying their fine motor skills to produce shapes with their body parts in the right positions. This kind of motor skill development impacts children's performance in school as they grow up² The Peabody Developmental Motor Scales has established the following typical sequence for scissors skills³:

By the age of two, children can use scissors. By the age of 2.5, the majority of kids can cut a 6-inch piece of paper. By the age of 3 to 3.5, they can cut a 6-inch line. By the age of 3.5 to 4 years, they are capable of cutting a circular shape. By the age of 4.5 to 5, they are able to cut a square shape.

Around the age of six and seven, more advanced cutting techniques emerge. When judging a child's cutting talent, the therapist must take into account the girth of the cutting line, the dimension of the paper, the dimensions of the design to be cut, and the design's intricacy. Within the ages of 6 and 7, refined cutting skills emerge. With time, the child's grip on the scissors transitions. The thumb remains in the same position in one hole, but the finger positions differ depending on the type of scissors used and the stage of development of the kid⁴. The child ought to have their middle finger in the lower hole of the handle, the ulnar two fingers flexed (either within or outside the lower hole, considering the dimension of the finger), and the index finger situated to stabilize the lower part of the scissors in a mature grip, which may not be produced until after the youngster is six years old⁵.

The present study aim is to develop cutting skills in children with autism to improve the precision and prehension skills. As this will boost their confidence and skills to attempt the cutting activity in future school work tasks and demands. There is less literature available on the cutting skills or scissors use so this is an attempt to add variation and literature on the development of fine motor skills on children with autism as the earlier the child is introduced to such activities hence it stimulating their development for the successful future school tasks and demands.

AIM AND OBJECTIVE

To investigate the effectiveness of cutting activity on enhancement of precision and prehension skills in children with autism.

METHODS AND MATERIALS

Subjects were selected for the study on the basis of Inclusion and exclusion criteria. 30 subjects were taken. Participants were assessed 1 week prior to the intervention on Children's Cutting Skills Observation Sheet Instrument. Subjects were divided equally into Group A (Experimental group) and Group B (Control group). The intervention protocol was of 8 weeks having 2 session of treatment per week. Group A received 30 minutes of conventional occupational therapy followed by the 15 minutes session of paper cutting treatment. Each paper cutting activity was of 3 minutes. There was total of 5 paper cutting patterns. Total duration of the session received by Group A is of 45 minutes. Group B received 45 minutes of conventional occupational therapy. Post assessment was done after 1 week of the intervention protocol. Materials: Assessment sheet. Blunt scissors, Papers, Clay, and Bins filled with rice, beans and macaroni, Shaving cream, Trampoline.

RESULTS

For both the control and experimental groups, the p-values exceed the 0.05 level of significance ($p > 0.05$). This indicates that the null hypothesis cannot be rejected; the mean values in the experimental group showed more substantial improvements in precision and prehension skills compared to the control group. This suggests that structured cutting activities can positively impact the development of these skills in children with autism.

t-Test: Paired Two Sample for Means: Comparison Table								
Stats	Control Group				Experimental Group			
	Pre-Assessment		Post-Assessment		Pre-Assessment		Post-Assessment	
	PC	OA	PC	OA	PC	OA	PC	OA
Mean	28.66667	28.06667	28.8888	28.906	30.66667	35.93333333	33.33333333	39.2
Variance	19.52381	27.92381	38.80952381	26.74285714	53.09524	73.4952381	83.80952381	19.88571
P(T<=t) two-tail	0.352113		0.108698868		0.4323		0.3334	
t Critical two-tail	2.144787		3.144786688		1.144787		2.567666	

The above table is showing that the mean scores, variance and p= value depict the increase in mean scores, showing slight improvement in precision and prehension skills.

DISCUSSION

The purpose of the study was to investigate the effectiveness of cutting activity on enhancement of precision and prehension skills in children with autism. The experimental group exhibited notable enhancements in both pattern cutting and overall assessment categories which included holding scissors, eye and hand coordination. Post-assessment mean values for the experimental group were significantly higher, indicating substantial progress in their cutting skills.

Riza Mahdalena, et al. (2020) conducted a study on 2 male participants on following the research, it was discovered that the effect of shearing skills on the motoric skills of the subjects in the study with autism increased in the mean level. And discovered that cutting has the plus point of building up a child's soft motor skills if they practice that skill frequently and also that cutting has the benefit of bolstering a child's soft motor skills if they practice cutting frequently.⁶

Nor AzZahraa Ahmad Tarmid, et al. (2022) the research investigation found that the three participants improved their scissor skills after using the Cutting Kit. A strong grasp of scissor skills among kids in preschool can have a positive impact on fine motor development. The results of this scissor skill analysis demonstrate that a particular ability can be mastered with the right intervention. As a result, research on cutting activity must be varied in order to determine the relationship between scissor skill mastery and other motor advancement.⁸

Ingrid Ratcliffe, et al. (2007) this study conclude that it is not possible to base a norm on children whose cutting ability falls into the aforementioned category, as cutting is not an inherent skill but one which is acquired and mastered by practice⁷.

Result of data analysis suggests that structured cutting activities can positively impact the development of the precision and prehension skills in children with autism if the child is introduced earlier to it with guidance.

CONCLUSION

Post-assessment mean values for the experimental group were significantly higher, indicating substantial progress in their cutting skills, though the p-value indicated the changes were not statistically significant. Therefore, integrating precision cutting exercises into therapeutic programs could be beneficial for enhancing motor skills, eye and hand coordination skills in children with autism.

LIMITATIONS OF THE STUDY

The sample size taken for the study was small.

- The duration of the treatment given was short.
- The study was completed in a shorter duration.
- The study participants were included from only one place.

FUTURE RECOMMENDATIONS OF THE STUDY

Available online at: <https://jazindia.com>

- The duration of the study can be increased.
- The duration of the treatment can be increased as the more duration or other suitable intervention can help develop cutting skills.
- The study can be conducted on a large sample.
- The study can be conducted on multiple populations, areas and places.

REFERENCES

1. Case-Smith J, O'Brien JC, editors. Occupational therapy for children. 6th ed. St. Louis (MO): Elsevier Mosby; 2014.
2. Stepanova E, Dowling S, Phelps M, Findling RL, Kowatch RA. Pharmacotherapy of emotional and behavioral symptoms associated with autism spectrum disorder in children and adolescents. *Pediatr Drugs*. 2021;23(1):1-20. doi: 10.1007/s40272-020-00416-1.
3. Folio MR, Fewell RR. Peabody Developmental Motor Scales—Revised. Chicago (IL): Riverside Publishing; 2000.
4. Smith RO, Broida J, Heuer L. Pinch and grasp strength: Standardization of terminology and protocol. *Am J Occup Ther*. 1985;39(3):164-7. doi: 10.5014/ajot.39.3.164.
5. Myers CA, Cress CJ. Therapeutic fine motor activities for preschoolers. In: Case-Smith J, Pehoski C, editors. *Development of hand skills in the child*. Rockville (MD): American Occupational Therapy Association; 1992. p. 47-59.
6. Mahdalena R, Isnendes R, Anggadini SD. The effect of cutting occupational therapy to increase soft motoric of children with autism. *Adv Soc Sci Educ Humanit Res*. 2020;491:436-9. doi: 10.2991/assehr.k.201212.086.
7. Ratcliffe I, Dada S. Analysis of cutting skills in four to six years olds attending nursery schools in Johannesburg. *S Afr J Occup Ther*. 2007 May;37(1):17-21. doi: 10.17159/231.
8. Tarmidi NAA, Rahman AA, Karim NHA, Hussein N, Osman M. The use of cutting kit in improving young children's scissor skills. *Int J Innov Creativity Change*. 2022;15(2):231-45.