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Effectiveness of Structured Physical Activity Program on Play Skills And Social Interaction In Children With Autism

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Abstract

The purpose of the study toevaluatetheefficacyofstructuredphysicalactivityprograminPlaySkillsandSocialSkills inchildrenwithautismpriortothe interventionandpostintervention.

Study Design: Experimental Design.

Participants: 30 children with ASD of age 6-8 years meeting inclusion criteria were randomly allocated into two groups. The 12-week structured physical activity program will be implemented with 60 minutesper session twice a week and total of 24 sessions are provided to the experimental group and controlled group received the conventional occupational therapy.

Methods: The participants were assessed one week prior to the interventions and one week after the intervention by the Autism Social Skills Profile2 (ASSP2) and Play Observation Scale (POS**).**

Result: A comparative analysis between the control and experimental groups highlights distinct statistical measures including mean, standard error, median, standard deviation, and sample variance. Prior to the intervention, the mean ASSP2 score stood at 92.73, experiencing an increase to 141.2 post-intervention. Likewise, the descriptive statistics for POS demonstrate a significant enhancement in play skills among participants. The mean POS score escalated from 29.7666 pre-intervention to 40.5333 post-intervention, further validating the positive influence of the training program

Conclusion: The findings validate the positive influence of structured physical activity on social and play skills development among children with autism and also emphasize the importance of tailored interventions in addressing the unique needs of this population.

Key words: Autism Spectrum Disorder, Play Skills, Social Skills, Physical Activity

Introduction

AutismSpectrumDisorder(ASD) isaneurodevelopmentaldiseasetypicallydiagnosedduringchildhoodinfirstthreeyearsoflife.ASDcanbecharacterizedbydifficultiesinspeech,verbaland non-verbal communication, stereotypical repetitive behaviors and sensory issues[1]. ASDcanbecategorizedintothreeseveritylevels:(a)level1,characterizedbymildautismnecessitating support; (b) level 2, requiring substantial support; and (c) level 3, representingthe most severe form of autism requiring significant support. However, variations in theenvironmentandanindividualchild'sgrowthanddevelopmentcanimpacttheseverityofsocialskillsandbehaviors[2].

Physical activity is crucial in impacting individual's lives in numerous ways, especially forchildrenasitcanenhancetheirphysicalwell-being, self-confidence,socialskills, self-esteemand play abilities[2,3].

ChildrenwithASDfacehigherriskduetorestrictedopportunitiesforphysicalactivities.Theirimpaired social interactions and communication skills often limit participation in play andphysicalengagementwithpeers.StudiesindicatethatindividualswithASDdemonstratelowerlevels of physical activity compared to their typically developing peers. Researchhasshownthatphysical exercise can address deficits in social interaction, reduce aggressive behaviors,[11,13]and decrease stereotypical behavior across various age groups within the ASD population.It has beendiscoveredthatphysicalactivitiescanaddressavarietyofdeficitsanddifficultiesthatchildrenwithASDtypicallyencounter[9].

The structured physical activity programs are thoughtfully designed to accommodate thesensorysensitivitiescommonlyobservedinchildrenwithASD.Thistailoredapproachensures that the activities are not only beneficial but also considerate of individual sensory needs,creatingamoreinclusive andsupportive environment.

Physical exercise improves the motor skills, affects brain plasticity , influences cognition and wellbeing. ASD children engage in less physical activity than typically developing peers. Structured physical training improves restricted and repetitive patterns of behavior and social skills of ASD children. Various physical activity plans have been designed to increase children's play and social skills. This study aims toassessttheeffectofstructuredphysicalactivityprogramonplayskillsandsocial skills in children with autism.

Objective of the Study

ToevaluatetheefficacyofstructuredphysicalactivityprograminPlaySkillsandSocialSkillsinchildrenwithautismpriortothe interventionandpostintervention.

Materials and Methods

StudyDesign: ExperimentalDesign
SourceofData: TheraKidsNoidaChild DevelopmentCentre
SampleSize: Atotalof30childrenweretakenandrandomlyallocatedintobothControlled Group (GROUP-A) and Experimental Group (GROUP-B) equally. Screening ofsubjectsweredone byusingcommunicationcomplexityscale.
Age Range: 6 Years to 8 Years
Study Duration:12Weeks

InclusionCriteria:

- ChildrendiagnosedwithASD
- Childrenwithmildtomoderatelevelofseverity
- Genders:BothMaleandFemale
- ASDchildrenagedbetween6-8Y

ExclusionCriteria:

- ChildrenwithseverelevelsofASD.
- Childrenwithassociated developmentaldisorders.
- Participantshavinganyothermedicalcondition.

OutcomeMeasures:
1. **PlayObservationScale**
2. **Autism Social Skills Profile**

Procedure

The 12-week structured physical activity program will be implemented with 60 minutesper session twice a week and total of 24 sessions. During each session, children with ASDwill be placed into a group of five, each group will be assigned the same therapist and oneassistant,andeachsessionwillbeconductedusingthesamecontentandroutinetoprovidetheparticipantswit hasenseofconsistency.Theexperimentalandcontrolledgroupswillcompletethe pre-test 1 week before the intervention program began. The post test will be administeredone week afterthe 12-weekinterventionprogram.Itcomprisesoffourparts:

(a) get-readyandwarm-upactivities;
(b) one-to-fivesmallgroupinstruction;
(c) whole-groupexercise;and
(d) Cooldownandreward act

Data Analysis and Result

Prior to intervention, the mean score for ASSP was 89.1333, increasing to 107.2666 post-intervention. This observed increase suggests that the structured physical activity program aimed at enhancing social skills in children with Autism Spectrum Disorder (ASD) yielded positive outcomes, including improvements in listening and communication skills, body language, and confidence.

Furthermore, the standard error for pre- and post-ASSP scores, 2.57 and 3.344 respectively, indicates a relatively stable margin of error post-intervention, reinforcing the effectiveness of the program in enhancing social skills without significant variability.

Similarly, analysis of pre- and post-POS scores revealed a mean increase from 31.1333 to 40.933, underscoring improvements in play skills following intervention. The limited increase in standard error post-POS assessment suggests consistent and improved outcomes in play skills among participants.

Table 7.0 Comparison of Control and Experimental Group

Stats	**Control**	**Exper**	**Control**	**Exper.**	**Control**	**Exper**	**Control**	**Exper**
	ASSP2-Pre	***ASSP2-Pre***	***ASSP2-Post***	***ASSP2-Post***	***POS-Pre***	***POS-Pre***	***POS-Post***	***POS-Post***
Mean	92.733	89.133	141.400	107.267	29.767	31.133	40.533	40.933
Standard Error	2.688	2.571	5.063	3.340	2.743	1.924	2.992	1.909
Median	94	90	138	110	25.5	31	40	40
Standard Deviation	10.41	9.96	19.61	12.94	10.62	7.45	11.59	7.39
Sample Variance	108.35	99.12	384.54	167.35	112.89	55.55	134.27	54.64

The table presented above, denoted as Table 7.0, presents a comparison between the control and experimental groups. This analysis examines various statistical measures including mean, standard error, median, standard deviation, and sample variance.

The mean values in ASSP2 Pre and ASSP2 Post is 89.133 and 107.267 respectively in experimental group and Pre and Post POS mean values are 31.133 and 40.933 depicting the significant improvement in experimental group.
Notably, the data indicates that the efficacy of the experimental group surpasses that of the control group. Specifically, the structured physical activity program demonstrated greater effectiveness within the experimental group, contributing to notable enhancements in social and play skills.

Discussion

The purpose of the study was to analyse the effectiveness of structured physical activity program on play skills and social interaction in children with autism.The results of this study proved the alternate hypothesis and reject the null hypothesis.
The results present descriptive statistics pertaining to the pre- and post-intervention outcomes as measured by the Autism Social Skills Profile2 (ASSP2) and Play Observation Scale (POS). Prior to the intervention, the mean ASSP2 score stood at 92.73, experiencing an increase to 141.2 post-intervention. This notable improvement suggests enhanced social skills, encompassing areas such as listening, communication, body language, and confidence, among children with autism. Noteworthy is the minimal increase in measurement uncertainty, indicated by the standard error for both pre-ASSP2 (2.68) and post-ASSP2 (5.06), post-intervention. This underscores the effectiveness of the structured physical activity program in fostering social skill development.

Conclusion

The descriptive statistics reveal substantial increases in mean scores for both ASSP 2 and POS, accompanied by stable standard errors, suggesting consistent and reliable improvements across social and play skills domains. Moreover, the strong positive correlation coefficients and low p-values associated with both pre-post ASSP and POS assessments provide compelling evidence supporting the effectiveness of the intervention in fostering skill development.
Additionally, the comparative analysis between the control and experimental groups further highlights the superior efficacy of the structured physical activity program in promoting social and play skills. This indicates that children with autism who participated in the intervention experienced greater improvements compared to those who did not, emphasizing the program's beneficial impact. Overall, these findings not only validate the positive influence of structured physical activity on social and play skills development among children with autism but also emphasize the importance of tailored interventions in addressing the unique needs of this population.

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