Breaking Down Barriers: Understanding the Gap in Gross Motor Development for Children with Special Needs from selected Pune city school

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ABSTRACT

This study aimed to investigate the gap in gross motor development between children with special needs and their typically developing peers, with a focus on understanding the magnitude of this gap. Children with special needs often experience significant delays in gross motor development, impacting their physical activity, social interaction, and overall well-being. A qualitative approach was employed, using the Gross Motor Development-2 (TGMD-2) tool to assess the gross motor skills development of 40 children with special needs and 40 typically developing children, aged 6-10 years of the Rewachand Bhojwani Academy Camp, Pune. Descriptive analysis was used to examine for each group. The result of this study showed that the children with special needs have not developed their gross motor skill as per the equivalent age where else the results of the typically developing children have shown age equivalent similar to that of their age. The study's results have important implications for policymakers, educators, and healthcare professionals seeking to promote inclusive physical activity opportunities and support the holistic development of children with special needs. By quantifying the gap in gross motor development, this study provides a foundation for the development of targeted interventions and adapted physical education programs aimed at bridging this gap and promoting more inclusive physical activity environments.

Keywords : Gross motor development, children with special needs, typically developing children, TGMD-2, Gap in gross motor development.

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Introduction

Children with special needs, including those with physical, cognitive, or emotional disabilities, often face significant challenges in developing gross motor skills. Gross motor skills, which include abilities such as running, jumping, balance, and coordination, are essential for physical activity, social interaction, and overall wellbeing. However, children with special needs often experience delays in gross motor development, which can impact their ability to participate in physical activities, engage with their peers, and develop a positive self-image. The importance of gross motor development for children with special needs cannot be overstated. Research has shown that physical activity and gross motor skill development are critical for promoting physical health, social skills, and emotional well-being in children with special needs. Moreover, gross motor skills are a strong predictor of physical activity levels in children, with those who possess stronger gross motor skills more likely to engage in regular physical activity. Despite the importance of gross motor development for children with special needs, there is a lack of research examining the gap in gross motor development between children with special needs and their typically developing peers. This knowledge gap is significant, as it limits our understanding of the magnitude of the gap and the types of interventions and supports that are needed to bridge this gap. The results of this study will provide a foundation for the development of targeted interventions and adapted physical education programs aimed at bridging the gap in gross motor development and promoting more inclusive physical activity environments.

Methodology and Approach:

To conduct this test the type of method used is descriptive method and the sample was collected using purposive sampling technique. The study groups composed of 40 children with special needs and 40 typically developing children from selected school of Pune city. The study was done using the cohort research design. The data was collected using The Gross Motor Development-2 data collection tool.

Data Analysis:

Age (years)	Locomotor age equivalent	Object control age equivalent (years)
7	3.0	3.3
8	3.0 -3.9	3.0 – 3.9
9	3.0 -3.9	3.0 – 4.3
10	3.0 -3.9	3.0 – 4.3
11	3.0 -3.6	3.0 – 5.0

Table No 1 : Descriptive statistics for children with special needs

 Table 2 : Descriptive statistics for typically developing children

Age (years)	Locomotor age equivalent	Object control age equivalent (years)
8	>10.9	>10.9
9	9.3 - >10.9	7.9 - >10.9

Table 3 : Statistical comparison children with special needs vs. typically developingchildren

	CWSN	TDC	Difference
Mean locomotor age equivalent	3.3 yrs	>10.9 yrs	7.6+ yrs
Mean object control age equivalent	3.6 yrs	9.3 yrs	5.7 yrs
Range of scores	3.0 – 5.0 yrs	7.9 - >10.9 yrs	Significant gap
Developmental delay	3 -7 yrs behind	At or beyond expected age	Clear disadvantage for CWSN

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Figure 1 :

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Figure 2



Gross Motor Development in Children with Special Needs (Table 1)

The data reveals that children with special needs have significantly delayed gross motor skills compared to their actual age. Their age-equivalent scores (the developmental level they function at) are consistently lower than their chronological age.

- The majority of children, aged 7 to 11 years, have locomotor and object control skills ranging between 3 to 4.9 years.
- Locomotor Skills: Most children scored around 3.0 to 3.9 years, indicating difficulties in running, hopping, and jumping.
- Object Control Skills: Some children performed slightly better in object control, with scores ranging from 3.0 to 5.0 years, but still far below their actual age.
- Even the oldest children in the group (11 years old) demonstrated skills of a 3 to 5-year-old, reinforcing the significant developmental lag.

Gross Motor Development in Typically Developing Children (Table 2)

In stark contrast, typically developing children outperformed their actual age in many cases, with scores often exceeding 10 years in both locomotor and object control skills.

- Age-equivalent scores were consistently above 10 years, indicating advanced gross motor development.
- Many 8-year-olds had gross motor skills equivalent to 9.3 to >10.9 years, showing strong physical competence.
- The youngest children in this group (8 years old) had motor skills equal to or beyond their age, while older children (9 years) performed at a level far exceeding their expected age.

The Magnitude of the Developmental Gap

The difference between the two groups is striking:

- Children with special needs: Their gross motor skill development is 3 to 7 years behind their actual age.
- Typically developing children: Their motor skills are on track or more advanced than their actual age.
- The gap in locomotor skills is even wider, with special needs children averaging 3 to 3.9 years compared to their peers who exceed 10 years.

• The object control gap varies, but typically developing children still outperform significantly.

Recommendations:

To bridge the gross motor development gap, several targeted interventions are necessary

- Adaptive Physical Education Programs
- Early Intervention Strategies
- Parental and Teacher Involvement
- Community and Policy Support

Summary:

Every child deserves to thrive, and gross motor skills play a vital role in their physical, social, and emotional well-being. However, children with special needs often face unique challenges in developing these essential skills. As it is not suitable to compare these two groups together that is the CWSN and TDC however the study is conducted to understand the gap between the two through which it can becomes easy for the programmers to conduct certain program in suitable way. This study highlights on the gross motor development of children with special needs, aged 6-14, as well as typically developing children of similar age group from Rewachand Bhojwani Academy in Pune. By using the Test of Gross Motor Development-2 (TGMD-2), researchers assessed two critical skill categories: locomotor skills, like running and hopping, and object control skills, like throwing and catching. The findings revealed that many children with special needs had gross motor skill levels significantly below their actual age. Some participants demonstrated motor skills similar to those of 3-4 years old, despite being older. However, the data also showed that each child developed at their own pace, with some excelling in certain skills. These results emphasize the need for personalized intervention programs that cater to each child's unique abilities. Adapted physical education and therapeutic interventions can help children with special needs develop their motor skills at their own pace, fostering a sense of accomplishment and confidence. This research can serve turning point for educators, therapists, and policymakers working to create inclusive physical activity environments. By focusing on individualized progress rather than comparisons, we can unlock the full potential of children with special needs and empower them to thrive. Ultimately, this study reminds us that every child deserves to shine, regardless of their abilities. By providing adequate support and opportunities, we can help children with special needs develop the gross motor skills they need to succeed and live fulfilling lives

Conclusion:

The study highlights that child with special needs experience significant delays in gross motor development, with many displaying age-equivalent motor skills much lower than their actual age. The findings emphasize that gross motor development among children with special needs is highly variable, indicating the need for personalized intervention strategies rather than generalized comparisons with typically developing children. Given the essential role of motor skills in physical activity, social interaction, and overall well-being, it is crucial to implement targeted physical education programs that cater to the specific needs of these children. Adaptive interventions, therapeutic exercises, and inclusive physical education environments can help them improve their locomotor and object control skills at their own pace. The study also calls for greater awareness among educators, parents, and policymakers to ensure that children with special needs receive the necessary support for motor skill development. Early intervention programs can enhance their confidence, participation in physical activities, and overall quality of life. In conclusion, addressing the gross motor development gap in children with special needs requires a holistic, individualized approach that promotes inclusivity and equal opportunities for physical development. Future research should focus on effective intervention strategies to support their motor skill growth.

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