

Gross and Fine Motor Development

Why is the Gross and Fine Motor Development domain important to measure in young children?

The pre-primary years are a critical period for motor development. Gross motor skills (big muscle movements, e.g., running, throwing a ball, balance) play an integral role in the development of children’s movement patterns. Children need gross motor skills to participate in physical activity, which is beneficial for their health and development. Physical activity confers similar benefits to health and well-being in later life stages. When children are active and trying different movements, they engage and stimulate their sensory systems. This link between sensory systems and movement is called ‘sensorimotor’, and is needed for the child to function optimally at school.

Fine motor skills (small muscle movements, e.g., drawing with a crayon) in this age group are important for developing future skills such as writing and self-care. These skills are essential for children to engage in many educational activities, and ultimately contribute to success at school. Not being able to complete daily tasks that require fine motor skills may cause frustration in a child, and could potentially hinder their independence and autonomy, and their ability to engage in other activities that could stimulate their development and learning.

How are young children in SA doing?

According to the Thrive by Five Index, the percentage of children *On Track* for Gross Motor Development (48%) was the second highest, after Early Literacy and Language (55%).

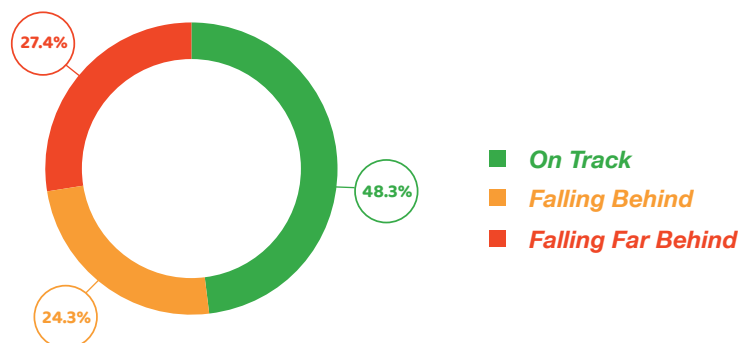
However, this still indicates that a substantial number of children are either *Falling Behind* (24%) or *Falling Far Behind* (27%) for this developmental domain.

The findings indicate that socioeconomic factors had little influence on Gross Motor Development, with only slight differences across income groups, and children in the highest income group (quintile 5) scoring slightly lower than children from lower income groups. Sex differences were also not significant – boys did slightly better than girls.

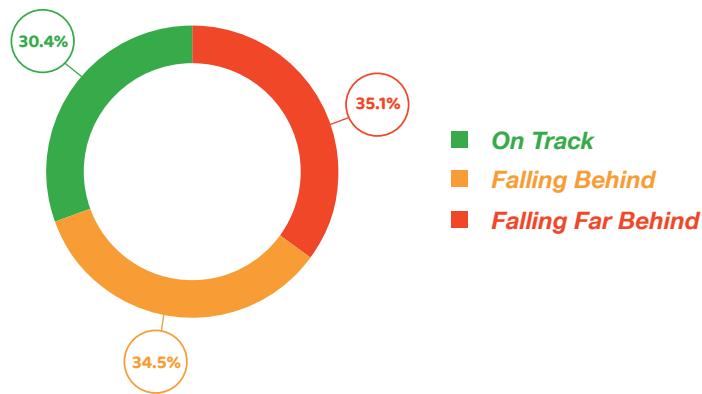
These findings align with other South African research done with preschool-aged children that found children from a rural, low-income setting (equivalent to quintile 1) outperformed children from a high-income urban setting (equivalent to quintile 5), and that sex differences were not evident on global gross motor skills scores. The data suggest that children in provinces with more rural areas may do better in gross motor skills, which could be due to more space for play and more walking for transport.

Children did not fare as well with Fine Motor Coordination and Visual Motor Integration (FMC-VMI) according to the Thrive by Five Index, with less than a third (30%) of children *On Track* for this developmental domain, and even more *Falling Behind* (35%) or *Falling Far Behind* (35%). For this domain, girls were noticeably better than boys (35% *On Track* vs 26% *On Track*), and the socioeconomic gradient was also more evident. Children in quintile 1 (the poorest children) had a greater chance of *Falling Far Behind* (41%) and only 1 in 4 children *On Track* (25%). In quintile 5, 47% were *On Track* and 22% were *Falling Far Behind*.

Gross Motor Development:
% Children *On Track*, *Falling Behind*
and *Falling Far Behind*



Fine Motor Coordination & Visual Motor Integration: % Children On Track, Falling Behind and Falling Far Behind



What are the implications of these findings?

It is concerning that less than half of the children have Gross Motor Development skills to equip them for movement and physical activity. This may have a detrimental impact on their health and well-being, in the short- and long-term.

The overall picture of children's FMC-VMI is even more troubling – 70% of children will likely struggle with educational activities requiring fine motor skills. In the most well-resourced environments, less than half of children's skills were *On Track*. This finding, along with the finding that children from environments with the most resources had the lowest gross motor scores, means that it is unlikely that merely providing more resources will make a significant impact on improving children's motor development.

Young children need a combination of structured and unstructured activities ('free play') at home and in early learning programmes to develop these skills – especially gross motor skills in urban areas where space is limited. Free play (e.g. playing 'house') provides opportunities for children to practise creativity, problem solving, decision making, and autonomy. Structured activities (e.g. games with rules and/or an adult facilitating the activity) provide children with opportunities to learn and practise these skills with guidance from a caregiver and/or early childhood development practitioners. Boys, especially, should be encouraged to participate in activities (e.g. colouring in, cutting out shapes) to develop their FMC-VMI.

To further address these motor deficits, it is essential to identify other activities that may be displacing opportunities for children to develop motor skills. It is possible that in some environments, opportunities to develop early numeracy and literacy skills are prioritised over motor activities. The trend of increased screen time amongst young children could also be taking the place of opportunities to develop motor skills.

Priority actions

- Programmes to train and/or support caregivers and practitioners should build their capacity to develop gross and fine motor skills of young children, especially those with limited resources.
- This training and support should emphasise how motor skills are part of everyday life, and the ways of developing these skills through simple, daily activities. At home, for example, this could be doing up buttons and zips while getting dressed; in ECD programmes, this could be encouraging children to move around in different ways, such as hopping and skipping, or doing actions to a song.
- The South African 24-Hour Movement Guidelines for Birth to 5 Years should be promoted with caregivers and practitioners. These recommend that children of this age (3-5 years) should spend no more than 1 hour of screen time per day, which includes educational screen activities, for optimal health and development.



About the author:

Dr. Catherine Draper is an Associate Professor in the MRC/Wits Developmental Pathways for Health Research Unit. She led the development of South African 24-hour Movement Guidelines, and was a member of the WHO Guideline Development Group for physical activity, sedentary behaviour and sleep in children under 5.

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