



## Is body Mass Index as a Marker of Obesity Predicting Motor Development of Obese Children?

Khadijeh Irandoust\*

Associate Professor; Imam Khomeini International University, [Irandoust@soc.ikiu.ac.ir](mailto:Irandoust@soc.ikiu.ac.ir)

### A R T I C L E I N F O

#### Article history:

Received: 2023/03/10

Accepted: 2023/05/12

Available online: 2023/05/14

**R**esearch has shown that children who are obese tend to have deficits in basic, specialized, and rudimentary skills, as well as a decline in physical literacy. Basic skills such as running, jumping, and throwing are essential for children's physical development and well-being, and deficits in these skills can lead to a range of issues later in life, including reduced physical activity, impaired motor function, and increased risk of chronic diseases (D'Hondt, et al; 2013). Specialized skills, such as those required in team sports, are also impacted by obesity. Obese children may struggle with coordination and balance, which can make it difficult to participate in sports and other physical activities. This, in turn, can lead to further inactivity and exacerbate the negative cycle of obesity and decreased motor development.

Rudimentary skills, such as crawling, rolling, and climbing, are also important for a child's development. These skills are essential for developing core strength, balance, and coordination, and they form the basis for more complex motor skills (Jürimäe, et al; 2010). However, obese children may struggle with these skills, which can lead to delays in motor development and further exacerbate the negative cycle of obesity and inactivity. Physical literacy, or the ability to move with confidence and competence in a range of physical activities, is also impacted by obesity. Obese children may lack the confidence to participate in physical activities, which can further reduce their physical literacy and lead to further declines in motor development (Stodden, et al; 2014). In addition to the physical impacts, childhood obesity can also have a negative impact on mental health and well-being. Obese children may experience lower self-esteem and self-confidence, which can further impact their participation in physical activities and exacerbate the negative cycle of inactivity and decreased motor development (Wu, et al; 2019).

The current method used by trainers and healthcare professionals to diagnose obesity is based on body mass index (BMI), which is a measure of weight in relation to height. However, BMI is not an accurate measure of obesity due to the importance of body

composition. Teachers and trainers should not rely solely on weight and BMI calculations, as the state of muscles, body water, and fat percentage are important factors in determining obesity. For example, a child with sarcopenic obesity may have lost part of their muscles and replaced them with fat, leading to a misleading BMI calculation. To accurately assess the obesity status of children, it is essential to check their body composition in order to predict their motor development process more accurately (Wu, et al; 2019). This can be done through various methods, such as bioelectrical impedance analysis or skinfold thickness measurements. When it comes to treating childhood obesity and promoting motor development, a multifaceted approach is needed. This includes addressing behavioral and environmental factors that contribute to obesity, such as poor nutrition and sedentary lifestyles. It also involves promoting physical activity and motor development in children, through structured exercise programs, play-based activities, and other interventions.

Structured exercise programs can be particularly effective in promoting motor development in obese children. These programs can be tailored to the child's specific needs and abilities, and can include a range of activities such as strength training, aerobic exercise, and flexibility training. Play-based activities, such as obstacle courses and games, can also be effective in promoting motor development and physical literacy in children. Another important aspect of promoting motor development in obese children is to provide a supportive environment. This can include creating safe and accessible spaces for physical activity, providing positive feedback and encouragement, and involving parents and caregivers in the process.

In conclusion, childhood obesity is a complex issue that requires a multifaceted approach. By focusing on motor development and physical literacy, we can help children achieve optimal health and well-being. Accurate diagnosis, tailored interventions, and a supportive environment can all be effective in promoting motor development in obese children. Ultimately, by addressing the root causes of childhood obesity and promoting healthy behaviors, we can help children to lead happier, healthier lives.

### References

D'Hondt, E., Deforche, B., Gentier, I., De Bourdeaudhuij, I., Vaeyens, R., Philippaerts, R., & Lenoir, M. (2013). A longitudinal analysis of gross motor coordination in overweight and obese children versus normal-weight peers. *International Journal of Obesity*, 37(1), 61-67. <https://doi.org/10.1038/ijo.2012.23>

Jürimäe, J., Jürimäe, T., Leppik, A., Kums, T., & Kaasik, T. (2010). Relationship between adiposity, motor and cognitive performance in prepubertal girls. *Journal of Science and Medicine in Sport*, 13(1), 136-141. <https://doi.org/10.1016/j.jsams.2009.02.002>

Stodden, D. F., Gao, Z., Goodway, J. D., & Langendorfer, S. J. (2014). Dynamic relationships between motor skill competence and health-related fitness in youth. *Pediatric Exercise Science*, 26(3), 231-241. <https://doi.org/10.1123/pes.2013-0127>

Wu, X. Y., Han, L. H., Zhang, J. H., Luo, S., Hu, J. W., & Sun, K. (2019). The effects of obesity on motor function in children. *Pediatric Obesity*, 14(7), e12507. <https://doi.org/10.1111/ijpo.12507>