

ARTICLE REVIEWED

Gross Motor Skill Performance in Children With and Without CHARGE Syndrome: Research to Practice.

Haibach-Beach, P., Perreault, M., Foster, E., & Lieberman, L. (2019). Gross motor skill performance in children with and without CHARGE syndrome: Research to practice. *Research in Developmental Disabilities*, 91, 103423. <https://doi.org/10.1016/j.ridd.2019.05.002>

THE PROBLEM

CHARGE syndrome is a multifaceted genetic condition that is diagnosed based on the presence of major and minor features, such as hearing loss, vision loss, and missing or malformed semicircular canals. Currently, there is minimal research on the balance and age of walking in children with CHARGE syndrome and less is known on the fundamental motor skills of children with CHARGE syndrome. It is important to determine the range of fundamental motor skill abilities of children with CHARGE syndrome to better inform physical educators, adapted physical educators, and health professionals to implement effective strategies in developing motor skills for this population.



Research Summary

This study examined gross motor skill performance and its associated factors in 37 children with CHARGE syndrome compared to 28 typically developing peers. Participants completed five motor skills (running, sliding, jumping, kicking, and overhand throwing). Additionally, several modifications were used to help children with sensory deficits such as beeping ball for kicking, fluorescent tape, and a sound source for running. The criteria from the Test of Gross Motor Development, Second Edition were used to assess motor skills. This study found that children with CHARGE syndrome were significantly behind their same age peers on locomotor and object control skills. Furthermore, the components of each motor skill assessed revealed that children with CHARGE syndrome had specific deficits in running component 3 (narrow foot placement landing on heel or toe) and 4 (nonsupport leg bent approximately 90 degrees) and kicking component 2 (an elongated stride or leap immediately prior to ball contact). Additionally, children with CHARGE syndrome experienced deficits in locomotor and object control skills, linked to a delayed onset of walking.

Conclusion

Early intervention for children with CHARGE syndrome should prioritize developing skills such as walking, throwing and kicking, using modifications such as bright-colored or beeping balls to aid performance. Educators, parents and allied health professionals should design multisensory lessons to support children with CHARGE syndrome in physical activities. A proactive approach to movement can help these children live physically active lives to their full potential.

Key Takeaway

Children with CHARGE syndrome require additional support to meet their educational needs, including guidance from physical education teachers and educators with specialized training. As inclusion efforts grow, it is essential for physical educators and adapted physical education specialists to possess the appropriate attitudes, knowledge and skills to effectively support students with CHARGE syndrome.

ADDITIONAL RESOURCES

Foster, E., Liberman, L., Perrault M., & Haibach-Beach, P. (2019). Constraints model for improving motor skills in children with CHARGE syndrome. *Palaestra*, 33(2), 39-44.