

The Importance of Movement for Individuals with CHARGE Syndrome

Third in a series

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Enhancing Movement Opportunities in Your Home

Movement production emerges from a constant interaction of the individual, the environment, and the task (Newell, 1984, 1986). Newell defined constraints as characteristics that either encourage or discourage movements (Newell, 1984). Movement also relies on the interconnectedness of perception, action, and cognition to perform behavior change, which is impacted by the individual, task, and environment.

In addition, the physical and social environment influences the development of new movement behaviors (Thelen & Fogel, 1989). All systems interact together for new movement patterns to emerge. New movement patterns only become preferred patterns under certain conditions. These preferred patterns of movements typically use the least amount of energy and therefore, may lead to atypical or inefficient patterns at first (Thelen, 1989). The emergence of movement patterns is developed by individual constraints based on the maturation of the central nervous system, development of posture, balance, muscular strength and endurance, and the ability to process sensory information (Haywood & Getchell, 2009). The arrangement of a movement pattern is then the result of the constraints provided at a specific moment in time, within a specific situation or environment (Coker, 2013).

Therefore, how can we manipulate the task and environment to increase movement opportunities:

Movement Task

- Provide opportunities for practice
- Utilize assistive equipment (i.e., sofa, chair, walker, push cart, gait trainer)
- Assist your child when they fall, to fall correctly by protecting their body
- Make sure your child feels comfortable and safe

- Increase their confidence with positive reinforcers (i.e., use a preferred task or object like an iPad, as a reward for performing a new task)
- Utilize any residual vision or hearing by placing motivating objects within the area to encourage your child to move to that object
- Increase muscle tone by performing the task for a longer period of time (i.e., if your child can stand for 7 seconds, try to increase standing for 9 seconds) or increase more repetitions within the same time frame (i.e., stand for 10 secs, four time a day; then the following week try for five times a day)

Environment

- Use open flat surfaces to increase movement success when trying new skills
- Provide cushion mats or pillows to assist in falling safely
- Move furniture for your child to use as assistance when walking or transitioning from sitting/kneeling to standing
- Support your child's hips to assist with balance during movements
- Once a child can stand, move all preferred objects (i.e., toys, balls, ipads) to tables and couches to promote an upright stance

If a child does not have the requisite affordances to walk independently (i.e., balance, muscular strength), the body will self-organize to a movement pattern with a more stable attractor state (e.g., scooting). Attractors are preferred states of stability and confidence (Coker, 2013). When a change in constraints is imposed on an individual, its stability is endangered and a new form is established (Thelen & Ulrich, 1991). The attractor states occur in a similar pattern to basins; where deep attractor basins are much more stable and are difficult to change, compared to shallow attractor basins, which are more susceptible to change (Coker, 2013; Ennis, 1992). Therefore, motor development delay can occur when a child is not able to shift into a new movement pattern and maintain stability in a desirable attractor state (Cowden & Torrey, 2007). Providing opportunities at home to practice movement patterns will increase your child's motor confidence and competence. With practice and positive feedback a new motor pattern may emerge, gaining stability and development into a deep attractor basin (Coker, 2013).

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