

# FACT SHEET

## Motor Development Variations Across Cultures: Implications for Culturally Competent and Family-Centered Pediatric Care

### What is Culture?

The United States Department of Health and Human Services Office of Minority Health defines culture as “integrated patterns of human behavior that include the language, thoughts, communications, actions, customs, beliefs, values, and institutions of racial, ethnic, religious, or social groups.”<sup>1</sup> Culture has also been defined as “the learned and shared beliefs, values, and life ways of a designated or particular group which are generally transmitted intergenerationally and influence one's thinking and action modes.”<sup>2</sup>

Culture is one of the many variables known to affect motor development. These variables include but are not limited to climate,<sup>3</sup> sex,<sup>4</sup> early postural experience,<sup>5,6</sup> socioeconomic status,<sup>7</sup> nutrition,<sup>8</sup> physical growth,<sup>9</sup> childrearing practices,<sup>10</sup> and parental expectations.<sup>11</sup>

Because the concept of culture is multifaceted, this fact sheet will focus on cultural variations in motor development as they relate to culture-based caregiving practices, routines, and parental beliefs across different racial/ethnic groups.

### Why is this important?

- The child population of the USA is expected to experience the majority–minority crossover in 2020.<sup>12</sup>
- By 2030, children from racial/ethnic minorities will account for more than half of the US population under the age of 18 years.<sup>13</sup>
- By 2060, 64% of children in the USA will belong to racial and ethnic minorities compared with 56% for the total population, and nearly one in five of the nation's total population will be foreign-born.<sup>12</sup>

As the US child population continues to grow increasingly diverse, pediatric physical therapists must carefully consider the child/family's cultural background and caregiving practices when assessing infants and children, establishing a plan of care, developing goals, and administering skilled intervention.

### Culture and Motor Development

Evidence from cross-cultural research has challenged the assumption that motor development follows a fixed and predictable sequence.<sup>14</sup> Culture-based variations in gross motor development have been documented in populations around the world. The following examples in Table 1 illustrate some of these differences and encourage a more flexible view of motor development milestones. These examples are not all-inclusive of the current body of cross-cultural studies and should not be used to make generalizations regarding a family's caregiving practices or expectations regarding their child's development.

Table 1: Culture-Based Variations in Gross Motor Development

WHAT?	DOCUMENTED REASONS WHY
Higher percentage of independent sitting in 5-month-old infants living in Cameroon and Kenya compared to 5-month-old infants living in Argentina, Italy, South Korea, and the US <sup>15</sup>	Emphasis on upright positioning and opportunities for practicing sitting during daily activities <sup>15</sup>
Gross motor acceleration in infants living in Jamaica, <sup>16,17</sup> Kenya, <sup>18,19</sup> Mali, <sup>20</sup> Nigeria, <sup>21</sup> and Uganda <sup>22,23</sup>	<ul style="list-style-type: none"> <li>- <u>Culture-based handling practices:</u> <ol style="list-style-type: none"> <li>1. Aggressive massage applied to infants with low tone<sup>11</sup></li> <li>2. Traction applied to infants' head and limbs for stretching<sup>11</sup></li> </ol> </li> <li>- <u>Culture-based positioning practices:</u> <ol style="list-style-type: none"> <li>1. Infants living in Africa carried in slings with little to no head support while mothers work in the field<sup>14</sup></li> <li>2. African infants propped into sitting and walking positions by parents<sup>19,20</sup></li> </ol> </li> <li>- Cultural belief/value that walking promotes a child's integration into their society and fosters interdependence<sup>11</sup></li> </ul>
Skipping of crawling by infants living in Jamaica <sup>16,17</sup>	Cultural belief/perception that crawling is primitive and demeaning. <sup>16,17</sup> In contrast, crawling on hands and knees is valued in European and American cultural groups as it promotes early independence with mobility <sup>24</sup>
Delayed onset of gross motor milestones in infants living in China and Japan as compared to infants living in Western countries <sup>25,26</sup>	<ul style="list-style-type: none"> <li>- Predominance of supine positioning during wakeful moments in Eastern Asian countries<sup>25,26,27</sup></li> <li>- Practice of "sandbags" for infant toileting in Northern China: infants spend more than 16 hours per day lying supine inside a small sleeping bag filled with fine sand<sup>26</sup></li> <li>- Infants tend to be dressed in heavy clothing, which may limit movement exploration<sup>28</sup></li> </ul>
Infants living in Hong Kong learn to roll supine to prone before they roll from prone to supine, the opposite of what is observed in Western cultures <sup>27</sup>	Preference for supine positioning during the day, resulting in decreased opportunities for practice of antigravity postural control <sup>27</sup>
Slowest rate of human development in The Ache group in Paraguay, a hunter-gatherer society <sup>11,14</sup>	Independent mobility is perceived as dangerous and is therefore discouraged by parents <sup>11,14</sup>

\*not all-inclusive of cross-cultural research literature

## Implications for Physical Therapists

- Infants from certain cultural groups may follow unique motor development trajectories due to culture-specific caregiving practices or cultural values/beliefs.<sup>29</sup>
- Using standardized motor development screening and assessment tools to evaluate the motor development of children in cultures other than those in which the normative samples were established may lead to misinterpretation of results and erroneous labeling of young children a developmentally delayed or “early achieving.”<sup>29</sup>
  - New population norms and cross-cultural adaptations for commonly used standardized motor development screening and assessment tools are available for many cultural contexts.<sup>29</sup>
- It is common for families to retain their culture-specific caregiving practices when they immigrate to a different country. A child born in the US to parents raised in another country may be raised using culture-specific handling and positioning practices of the parents’ country.<sup>30</sup>

## Culturally Competent Care and Family-Centered Pediatric Care: Put On Your Thinking Cap!

### EXAMINATION

#### History

- Do I know enough about this family’s caregiving routines?
- Are there cultural values or beliefs that may affect this family’s perception of their child’s development?
- Do I know what is important to this family? Do I know the parents’ priorities?

#### Tests and Measures

- Is the motor development screening/assessment tool I am using valid for children from this cultural background?
- Are there cross-cultural adaptations of standardized motor development assessments appropriate for this client/patient’s cultural background?

### EVALUATION

- Do the “delays” I identified during my examination reflect a true developmental delay or a culture- or family-specific difference?
- Can my client/patient’s poor performance on certain test items be explained by lack of familiarity with or exposure to testing objects?

### INTERVENTION

- Parent/caregiver education:** Have I explained how culture- and family-specific caregiving handling and positioning practices may affect motor development?
- Treatment Strategies:** Do my interventions incorporate culture-specific practices that are important to the family and child?

### DIAGNOSIS / PROGNOSIS / PLAN OF CARE

- Do the family’s caregiving practices contribute to my examination findings as they relate to my client’s motor development? Are these practices strengths or potential barriers to my plan of care?
- Have I considered using goal- setting tools to focus on what is important to this child/family?
- Am I approaching goal setting as a collaborative effort between myself, the child/family, and other disciplines involved in this child’s care?

**DON'T ASSUME** that families adhere to cultural norms

**ASK PARENTS:** What do you consider important to your child / family?

## Cultural Competency Resources

- APTA Vision Statement and Cultural Competence. <http://www.apta.org/CulturalCompetence/Vision/>
- APTA Blueprint for teaching cultural competence in physical therapy education. <http://www.apta.org/Educators/Curriculum/APTA/CulturalCompetence>
- Campinha-Bacote J. The process of cultural competence in the delivery of healthcare services: a model of care. *Journal of Transcultural Nursing*. 2002; 13(3):181-184.
- National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health and Health Care. [www.thinkculturalhealth.hhs.gov/assets/pdfs/EnhancedNationalCLASStandards.pdf](http://www.thinkculturalhealth.hhs.gov/assets/pdfs/EnhancedNationalCLASStandards.pdf)
- Setting the Agenda for Research in Cultural Competence in Health Care. [www.archive.ahrq.gov/research/findings/factsheets/literacy/cultural/cultural.html](http://www.archive.ahrq.gov/research/findings/factsheets/literacy/cultural/cultural.html)

## References

1. US Department of Health and Human Services Office of Minority Health. Assuring cultural competence in health care: recommendations for national standards and outcomes-focused research agenda. Washington, DC: US Government Printing Office; 2000.
2. Pasick RJ, D'Onofrio CN, Otero-Sabogal R. Similarities and differences across cultures: questions to inform a third generation for health promotion research. *Health Educ Q*. 1994;23(suppl):S142–61.
3. Tronick EZ, Thomas RB, Daltabuit M. The Quechua manta pouch: a caretaking practice for buffering the Peruvian infant against the multiple stressors of high altitude. *Child Dev*. 1994; 65: 1005–13.
4. Goodway JD, Robinson LE, Crowe H. Gender differences in fundamental motor skill development in disadvantaged preschoolers from two geographical regions. *Res Q Exerc Sport*. 2010; 81: 17–24.
5. Lobo MA, Galloway JC. Enhanced handling and positioning in early infancy advances development throughout the first year. *Child Dev*. 2012; 83: 1290–302.
6. Lee HM, Galloway JC. Early intensive postural and movement training advances head control in very young infants. *Phys Ther*. 2012; 92: 935–47.
7. McPhillips M, Jordan-Black J. The effect of social disadvantage on motor development in young children: a comparative study. *J Child Psychol Psychiatr*. 2007; 48: 1214–22.
8. Sudfeld CR, McCoy DC, Fink G, et al. Malnutrition and its determinants are associated with suboptimal cognitive, communication, and motor development in Tanzanian children. *J Nutr*. 2015; 145: 2705–14.
9. Thelen E, Fisher DM, Ridley-Johnson R. The relationship between physical growth and a newborn reflex. *Infant Behav Dev*. 2002; 25: 72–85.
10. Kolobe TH. Childrearing practices and developmental expectations for Mexican-American mothers and the developmental status of their infants. *Phys Ther*. 2004; 84: 439–53.
11. Cintas HL. Cross-cultural similarities and differences in development and the impact of parental expectations on motor behavior. *Pediatr Phys Ther*. 1995; 7: 103–11.
12. Colby SL, Ortoman JM. Projection of the size and composition of the U.S. population: 2014 to 2060. US Census Bureau 2015. Available at: <https://www.census.gov/content/dam/Census/library/publications/2015/demo/p25-1143.pdf> (accessed 15 August 2015).
13. Perez DA, Hirschman C. The Changing racial and ethnic composition of the US population: emerging American identities. *Popul Dev Rev*. 2009; 35(1): 1–51.10.
14. Adolph KE, Karasik L, Tamis-LeMonda CS. Motor skill. In Bernstein M, editor. *Handbook of Cultural Developmental Science*. New York: Taylor & Francis, 2010: pp. 61–88.
15. Karasik L, Tamis-LeMonda CS, Adolph KE, Bornstein MH. Places and postures: a cross- cultural comparison of sitting in 5-month-olds. *J Cross Cult Psychol*. 2015; 46(8):1023-1038.

16. Hopkins B, Westra T. Motor development, maternal expectations, and the role of handling. *Infant Behav Dev.* 1990; 13: 117–22.
17. Hopkins B, Westra T. Maternal expectations of their infants' development: some cultural differences. *Dev Med Child Neurol.* 1989; 31: 384–90.
18. Keefer CH, Tronick E, Dixon S, Brazelton TB. Specific differences in motor performance between Gusii and American newborns and a modification of the Neonatal Behavioral Assessment Scale. *Child Dev.* 1982; 53: 754–9.
19. Super CM. Environmental effects on motor development: the case of African infant precocity. *Dev Med Child Neurol.* 1976; 18: 561–7.
20. Bril B, Sabatier C. The cultural context of motor development: postural manipulations in the daily life of Bambara babies (Mali). *Int J Behav Dev.* 1986; 9: 439–53.
21. Iloeje SO, Obiekwe VU, Kaine WN. Gross motor development of Nigerian children. *Ann Trop Paediatr.* 1991; 11: 33–9.
22. Geber M. The psycho-motor development of African children in the first year, and the influence of maternal behavior. *J Soc Psychol.* 1958; 47: 185–95.
23. Geber M, Dean RFA. Gesell Tests on African children. *Pediatrics.* 1957; 20: 1055–65.
24. Benson, JB. The significance and development of crawling in human infancy. In: Clark JE, Humphrey JH, editors. *Advances in motor development research, volume 3.* New York: AMS Press; 1990:91-142.
25. Werner EE. Infants around the world: cross-cultural studies of psychomotor development from birth to two years. *J Cross-Cultural Psychol.* 1972; 3: 111–34.
26. Mei, J. The Northern Chinese custom of rearing babies in sandbags: implications for motor and intellectual development. In: vanRossum, J.; Laszlo, J., editors. *Motor development: Aspects of normal and delayed development.* Amsterdam: VU Uitgeverij; 1994.
27. Nelson ES, Yu LM, Wong D, Wong HYE, Yim L. Rolling over in infants: age, ethnicity, and cultural differences. *Dev Med Child Neurol.* 2004; 46: 706–9.
28. Fung KP, Lau SP. Denver Developmental Screening Test: cultural variables. *J Pediatr.* 1985; 106: 343–343.
29. Mendonça B, Sargent B, Feters L. The cross-cultural validity of standardized motor development screening and assessment tools: a systematic review. *Dev Med Child Neurol.* 2016;58(12):1213-1222.
30. Inman AG, Howard EE, Beaumont RL, Walker JA. Cultural transmission: Influence of contextual factors in Asian Indian immigrant parents' experiences. *J Couns Psychol.* 2007; 54: 93–100.

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