DEVELOPMENTAL AND BEHAVIORAL PEDIATRICS

Baby Walkers Delay Motor and Mental Development

Source: Siegel AC, Burton RV. Effects of baby walkers on motor and mental development in human infants. J Dev Behav Pediatr. 1999;20:355-361.

Many parents use baby walkers to provide mobility and exercise for their young, pre-ambulatory infants. Manufacturers now equip most walker devices with a wide opaque plastic tray and relatively small leg openings to decrease the likelihood of tipping accidents or suffocation from the infant's head being wedged in the seat. This design prevents the infant from seeing his or her moving legs. Developmental studies suggest that visual feedback about body position and limb movement is necessary for the timely acquisition of motor milestones.[1,2] Therefore, pre-ambulatory walker experience may be conceptualized in terms of early deprivation reminiscent of that created in a classic series of animal experiments on the critical role of visual feedback in developing motor systems.

Siegel and Burton analyzed motor and mental development in 109 infants (of those, 102 were white, 4 were Asian, 1 was African American) with and without walker experience between the ages of 6 and 15 months: 34 were 6 months old, 35 were 9 months old, and 40 were 12 months old at initial testing. Fifty-six infants had experience using walkers (Walkers); 53 infants had no walker experience (No-Walkers). The Walker group was further divided into 2 groups: 34 using "Occluding Walkers" with large opaque trays and small leg openings, and 19 infants who used outdated "See-Feet Walkers" that allowed infants to see their legs, thus permitting a form of visual-motor enrichment. A cross-sectional/short-term longitudinal design was used. The cross-sectional component permitted analyses to determine whether infants were more or less sensitive to walker exposure across different ages. The Bayley scales of infant development were administered to all infants at baseline and after 3 months. Parents were instructed to record the exact dates of sitting, crawling and walking on a motor-milestone checklist.

Walker-experienced infants sat ($P<.000$), crawled ($P=.03$), and walked ($P=.02$) later than No-Walker controls, and they scored lower on the Bayley scales of mental and motor development. The group using Occluding Walkers that prevented visual feedback of limb position had lower Bayley scores of mental ($P<.003$) and motor ($P<.000$) development than did the See-Feet Walker or No-Walker groups. However, contrary to the visual-motor hypothesis, early exposure to the See-Feet walkers did not facilitate motor development when compared to the No-Walkers. The results also suggested that restriction in a walker may exert its greatest negative influence on mental development in the 6- to 9-month age period. The effect of walker use on mental development is not short-lived, as frequent initial use continued to predict comparatively lower mental scores in some infants for as long as 10 months after initial use ($P<.001$). Given the adverse consequences of walker use with respect to development and the increased risk of injury posed by them, the authors conclude that the risks of walker use outweigh the benefits.

AAP GRAND ROUNDS™

VOLUME 4, NUMBER 1 PAGES 3 - 10 January 2000

Commentary by Ronald L. Lindsay, MD, FAAP

Pediatrics, Nisonger Center UAP, The Ohio State University

According to a Consumer Products Safety Commission (CPSC) report (June 23, 1994), baby walkers are responsible for more injuries annually than any other type of juvenile product.[3] The types of injuries include fractures, burns, head injuries, finger entrapments, amputations, and dental injuries. Siegel and Burton have now documented that baby walkers can have measurable effects on motor and mental development between the ages of 6 to 15 months, with the more visually restricting walker associated with the lowest developmental scores. For some infants, the deleterious effect of walker use was measurable for as long as 10 months after initial use. The authors noted that because infants were not studied after 15 months of age, the persistence of group differences beyond the first year could not be determined. They believe that normal infants who were exposed to walkers will eventually catch up to their No-Walker peers when they begin to walk on their own. This catch-up may be slower and more clinically relevant in children with developmental disabilities. There have been at least 11 deaths involving baby walkers since January 1984. In 1992, the AAP and other consumer-oriented groups filed a petition with the CPSC asking for a ban on baby walkers, a ban that has not yet occurred. When the developmental data of this study is considered in conjunction with the risk of injury and death associated with baby walkers, one has to question why baby walkers continue to be sold.

References

1. Butterworth G, et al. *Perception.* 1977;6:255-263.
2. Lasky RE. *Child Dev.* 1977;48:112-117.
3. AAP Committee on Injury and Poison Prevention. *Pediatrics.* 1995;95:778-780.