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Small, Low Wooden Round Tables vs. The Baby Walkers : which is the Best and the Safest to Learn to Walk?

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Abstract

The American Academy of Pediatrics (AAP) strongly discourages the use of baby walkers. Because they make it so easy for the child to get around, walkers can prevent a baby's upper leg muscles from developing correctly. And because they make it possible for a baby to reach hot items or poisons that a child wouldn't normally be able to get to, they're less safe. Small low wooden round tables are suggested for the first time in the medical literature as the best and the safest tool for learning to walk by babies.

Keywords: Baby walker, Small low wooden round table.

Analysis Background

Videos and a Photo :

- Best Baby Walker in 2019 - Top 6 Baby Walkers Review

https://www.youtube.com/watch?v=HU4t33_XFNA

- Horrific baby walker accident

https://www.youtube.com/watch?v=ljqkLmvEqG8

- Tot in Baby Walker Tumbles Down Escalator after Wandering from Restaurant

https://www.youtube.com/watch?v=WQfp3nhA2-w

- Small low wooden round table

http://www.csen.com/YA.jpg

Discussion

The American Academy of Pediatrics (AAP) strongly discourages the use of baby walkers. Because they make it so easy for the child to get around, walkers can prevent a baby's upper leg muscles from developing correctly. And because they make it possible for a baby to reach hot items or poisons that a child wouldn't normally be able to get to, they're less safe.

A century of research on the development of walking has examined periodic gait over a straight, uniform path. The current study provides the first corpus of natural infant locomotion derived from spontaneous activity during free play. Locomotor experience was immense: Twelve- to 19-month-olds averaged 2,368 steps and 17 falls per hour.

Novice walkers traveled farther faster than expert crawlers, but had comparable fall rates, which suggests that increased efficiency without increased cost motivates expert crawlers to transition to walking. After walking onset, natural locomotion improved dramatically: Infants took more steps, traveled farther distances, and fell less. Walking was distributed in short bouts with variable paths--frequently too short or

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irregular to qualify as periodic gait. Nonetheless, measures of periodic gait and of natural locomotion were correlated, which indicates that better walkers spontaneously walk more and fall less. Immense amounts of time-distributed, variable practice constitute the natural practice regimen for learning to walk [1].

Baby walkers (BWs) are still commonly used. The resultant injuries are largely preventable. Understanding the reasons for their use and the circumstances leading to these accidents might lead to prevention.

To study the reasons for using BWs, how accidents occur, types of injury and their management.

Mothers of 100 children were interviewed while admitted or in the emergency room. The questionnaire included reasons for BW use, predisposing circumstances and types of injury sustained.

BWs were used by 83% of the children (44% girls, 39% boys), starting at an age between 5 and 8 months. Reasons for use were: to be occupied, 71%; to walk earlier, 54%; to strengthen the legs, 28%. Accidents were sustained by 78 (94%) of the infants as a result of BW use. The reasons were: being pushed by someone, 37%; BW mechanical defect, 36%; tripping, 22%. The commonest place was in a corridor (52%). Head injuries were sustained by 82% and included bruising, epistaxis, cut lip, tooth damage, cut tongue, skin abrasions and skull fracture. Limb injuries were sustained in 17%: laceration and/or abrasion, bruising and joint dislocation.

Injury from use of BWs is still common. Doctors should discourage their use and parents informed about the attendant hazards. A playpen is a safer place for young children [2].

Baby walkers (BWs) continue to be a frequent cause of head injuries in young children. A random sample survey of 240 families with children aged 2-6 years revealed a use rate of baby walkers of 55%. Of the children using baby walkers 20% were found to have suffered a BW-related accident. In a retrospective study we reviewed 172 case reports of infants who suffered a BW-related injury between January 1990 and June 1993. We observed 19 skull fractures, 23 concussions of the brain and 125 contusions and lacerations of the head including 4 teeth luxations and 3 fractures or distortions of the upper extremity. BW-related injuries represent the third most common mode of injury in children aged 7-14 months. We conclude that despite previous warnings BW still represent a frequent cause of severe head injuries in young children. We recommend a general ban on the sale and manufacture of BWs [3].

Baby walkers have been associated with burns, head trauma and other types of injury. A retrospective study of all infants under the age of two years attending an accident and emergency unit demonstrated 22 injuries associated with baby walkers from a total of 1049 attendances. The most serious injuries were three skull fractures, with the most common mechanism being of a fall downstairs in the walker. Injury while in a baby walker occurred with a similar frequency to injury due to road traffic accidents. We conclude that despite previous warnings BabyWalkers still represent a considerable hazard to infants [4].

To investigate the epidemiologic characteristics of infant walker-related injuries among children <15 months old who were treated in US emergency departments and to evaluate the effect of the 2010 federal mandatory safety standard on these injuries.

National Electronic Injury Surveillance System data from 1990 to 2014 were analyzed.

An estimated 230 676 children <15 months old were treated for infant walker-related injuries in US emergency departments from 1990 to 2014. Most of the children sustained head or neck injuries (90.6%) and 74.1% were injured by falling down the stairs in an infant walker. Among patients who were admitted to the hospital (4.5%), 37.8% had a skull fracture. From 1990 to 2003, overall infant walker-related injuries and injuries related to falling down the stairs decreased by 84.5% and 91.0%, respectively. The average annual number of injuries decreased by 22.7% (P = .019) during the 4-year period after the implementation of the federal mandatory safety standard compared with the 4-year period before the standard.

Infant walker-related injuries decreased after the implementation of the federal mandatory safety standard in 2010. This decrease may, in part, be attributable to the standard as well as other factors, such as decreased infant walker use and fewer older infant walkers in homes. Despite the decline in injuries, infant walkers remain an important and preventable source of injury among young children, which supports the American Academy of Pediatrics' call for a ban on their manufacture and sale in the United States [5].

To determine the incidence and significance of walker-related injuries in infants.

During a 3-year, 8-month period, all infants who were brought to the University of Virginia Pediatric Emergency Department with a walker-related injury were prospectively studied. During the emergency department visit, demographic and epidemiologic information were recorded. The annual incidence of walker-related injuries occurring in infants < 1 year of age that resulted in a hospital emergency department visit was calculated from the home zip codes of the injured patients and from the population of infants < 1 year of age living in Charlottesville and in Albemarle County.

Sixty-five patients were enrolled in the study. The age distribution ranged from 3 months to 17 months, with 95% younger < 1 year old. Mechanisms associated with walker- related injuries included stairway falls in 46 infants (71%), tip-overs in 14 infants (21%), falls from a porch in 2 infants (3%), and burns in 3 infants (5%). These injuries predominantly involved the head and neck region (97%), with few injuries to the extremities (6%) and trunk (3%). Although the majority of injuries were minor, significant injuries occurred in 19 infants (29%). These injuries included skull fracture, concussion, intracranial hemorrhage, full-thickness burns, c-spine fracture, and death. After excluding the burned patients, all the serious injuries resulted from falls down stairs. The annual incidence of injuries occurring

in infants < 1 year of age, related to the use of walkers, and resulting in an emergency department visit was 8.9/1000, and for serious injuries was 1.7/1000.

The incidence and significance of infant walker-related injuries in infants are unacceptably high [6].

Baby walkers are used all around the world as fun equipment without any dangers. In contrast with public beliefs, some researchers have claimed they can cause developmental delay. We aimed to investigate their effect on child development through a systematic review.

We searched PubMed, Google Scholar, EMBASE, and Scopus for related articles in English and included all study designs. All articles, which fulfilled the inclusion criteria, were included without considering the year of publication.

Of 315 articles found in PubMed, 1630 citations in Google Scholar, 18 articles in EMBASE, and 38 papers in Scopus, only 9 articles fulfilled the inclusion criteria. Among them, a cohort study and two cross-sectional studies reported developmental delay in the aspects in baby walker users. Other studies including clinical trials did not show any developmental delay in these children.

Evidence against baby walker is not enough regarding its negative effect on child development. This subject needs to be addressed more, considering a large number of baby walker users worldwide [7].

Baby walkers (BWs) are frequent causes of infant injuries. Little research is reported from the Middle East and few population-based studies anywhere.

Using multi stage random sampling in a city of the United Arab Emirates, 4 of 8 female Arab government high schools and 3 final-year classes each from science and arts tracks were selected. Structured self-administered questionnaires assessed prevalence, frequency, severity, and external causes of BW incidents and injuries, and residential hazards.

Response was 100 %, 696 students, 55 % (n = 385) Emirati citizens. 87 % (n = 605) of families used/had used BWs. Among 646 injuries were 118 ER (emergency) visits, 42 hospitalizations, 11 disabilities, and 3 deaths. Average risk was 1 incident/user, 1 injury/4 users, 1 ER visit/20, 1 hospitalization/55, 1 disability/200, 1 death/1000. Odds ratios for >1:1 floor levels were 2.3 (95 % confidence interval: 1.2, 4.3) for hospitalization, 16.8 (95 % CI: 2.1, 132.5) disability. Incidents included hitting objects 48 % (n = 1322), overturning 23 % (n = 632), accessing hazardous objects 17 % (n = 473), and falling down stairs 11 % (n = 300); 1 % (n = 32) fell into swimming pools. In 49 % (n = 297/605) of user families, ≥1 child had been injured.

Despite causing many injuries including disabilities and fatalities, BWs were used by nearly all families. Governments should consider Canada's lead in prohibiting importation, sales, and advertising of BWs [8].

In 1999, an estimated 8800 children younger than 15 months were treated in hospital emergency departments in the United States for injuries associated with infant walkers. Thirty-four infant walker-related deaths were reported from 1973 through 1998. The vast majority of injuries occur from falls down stairs, and head injuries are common. Walkers do not help a child learn to walk; indeed, they can delay normal motor and mental development. The use of warning labels, public education, adult supervision during walker use, and stair gates have all been demonstrated to be insufficient strategies to prevent injuries associated with infant walkers. To comply with the revised voluntary standard (ASTM F977-96), walkers manufactured after June 30, 1997, must be wider than a 36-in doorway or must have a braking mechanism designed to stop the walker if 1 or more wheels drop off the riding surface, such as at the top of a stairway. Because data indicate a considerable risk of major and minor injury and even death from the use of infant walkers, and because there is no clear benefit from their use, the American Academy of Pediatrics recommends a ban on the manufacture and sale of mobile infant walkers. If a parent insists on using a mobile infant walker, it is vital that they choose a walker that meets the performance standards of ASTM F977-96 to prevent falls down stairs. Stationary activity centers should be promoted as a safer alternative to mobile infant walkers [9].

To assess parental decision making in the acquisition of an infant walker and the influences surrounding that decision.

Caretakers of children attending a residents' continuity practice during a one month period were invited to participate in a structured interview to assess various aspects of infant safety. Ten questions specifically addressed infant walkers and the decision to acquire one; seven questions collected demographic data.

One hundred and fifty four primary caretakers participated. Of these, 77% (n = 119) of caretakers used infant walkers for their child. For children who were not first born, 85% of caretakers had used walkers with their other children. No statistically significant differences were found between walker users and non-users with respect to the sex or birth order of the child, race, education, or (type of) caretaker. Also, no differences were found between these groups with respect to having received safety information from the pediatrician. For users, 97% heard about walkers before their baby's birth, but 65% did not decide to use one until after the birth. In addition, 61% of walker users stated that no one influenced their decision to get a walker and 75% bought their own. These decisions were not affected by caretaker education or birth order of the child. Finally, 78% believed that walkers were beneficial, and 72% believed that walker use accelerated development of independent walking skills.

Mothers purchased walkers because of no uniformed perception of benefit. A period of time, up to several months in length, exists from when the first mother hears about walkers until she decides to purchase one. Until legislation can be passed banning walkers, this period of time may provide a window of opportunity for appropriate anticipatory guidance in the form of intense media assisted, anti walker campaigns [10].

To study the impact of infant walker use on motor development and injuries.

One hundred and eighty five parents or primary care givers who attended a Singapore government polyclinic from September 1993 to February 1994, with their infants between 7 to 10 months, for a developmental assessment session.

A government polyclinic in Singapore.

The parent or primary care giver answered questions pertaining to infant walker use and injuries attributed to its use. Each infant was then given the Singapore modified version of the Denver Developmental Screening Test (DDST-S), along with a full clinical examination; both testers were blinded to walker use.

One hundred and sixty seven (90%) of 185 infants used walkers regularly, and 21 (12.5%) of the users had one or more injuries. Most injuries were minor, such as bruises and swellings on the head, forehead, face, and cheeks. None of the children who did not use walkers showed any abnormal DDST-S results whereas 18 (10.8%) of the 167 walker users had either abnormal or questionable DDST-S results.

12.5% of walker users had one or more injuries and walker use may also delay the child's motor development. These findings will help the physician or nurse in primary care settings to advise parents about the potential hazards of walker use [11].

There are cells in our motor cortex that fire both when we perform and when we observe similar actions. It has been suggested that these perceptual-motor couplings in the brain develop through associative learning during correlated sensorimotor experience.

Although studies with adult participants have provided support for this hypothesis, there is no direct evidence that associative learning also underlies the initial formation of perceptual-motor couplings in the developing brain. With the present study we addressed this question by manipulating infants' opportunities to associate the visual and motor representation of a novel action, and by investigating how this influenced their sensorimotor cortex activation when they observed this action performed by others. Pre- walking 7-9-month-old infants performed stepping movements on an infant treadmill while they either observed their own real-time leg movements (Contingent group) or the previously recorded leg movements of another infant (Non-contingent control group).

Infants in a second control group did not perform any steps and only received visual experience with the stepping actions. Before and after the training period we measured infants' sensorimotor alpha suppression, as an index of sensorimotor cortex activation, while they watched videos of other infants' stepping actions. While we did not find greater sensorimotor alpha suppression following training in the Contingent group as a whole, we nevertheless found that the strength of the visuomotor contingency experienced during training predicted the amount of sensorimotor alpha suppression at post-test in this group. We did not find any effects of motor experience alone. These results suggest that the development of perceptual-motor couplings in the infant brain is likely to be supported by associative learning during correlated visuomotor experience [12].

Recognising structural and functional development of the paediatric foot is fundamental to ensuring a strong theoretical framework for health professionals and scientists. The transition of an infant from sitting to walking takes approximately 9 months and is when the structures and function of the foot must respond to the challenges of bearing load; becoming increasingly more essential for locomotion. Literature pertaining to the phase of development was searched. A narrative approach synthesized the information from papers written in English, with non-symptomatic infant participants up to the development stage of independent walking or two years of age. A range of literature was identified documenting morphological, physiological, neuromuscular and biomechanical aspects of the infant within this phase of development. The progression of variable gait to a regular pattern is documented within a range of studies focusing on neuromuscular control and ambulation development. However, methodological approaches may have compromised the external validity of such data. Additionally, limited consideration for the specific function and development of the foot is evident, despite its role as the primary site of weight bearing and interface with the floor. A lack of consideration of infants prior to ambulation (i.e. before cruising or walking) is also apparent which prevents a reference baseline being used effectively [13].

Since the 1920s researchers have used infant motor skill acquisition as a window into general developmental processes. Infants' motor behaviors are an especially promising model system because movements are directly observable and occur over multiple, nested time-scales. In contrast to the covert nature of most psychological functions, motor actions occur out in the open. Whereas infants' thoughts, percepts, emotions, and linguistic representations must be inferred, the form and timing of their movements are directly accessible. Moreover, researchers can observe change in infants' movements in real time and over development – the millisecond changes in joint angles and foot trajectory over a single step, the step-to-step changes across a walking path, and the changes in walking skill over months of practice [14-21].

In this first study of the impact of sleep on infants' problem solving of a locomotor task, 28 newly walking infants who were within a week of having given up crawling trained to navigate a shoulder-height tunnel to reach a caregiver waiting at the end. During the transitional window between crawling and walking, infants are reluctant to return to crawling, making this task uniquely challenging. Infants were randomly assigned to either nap or stay awake during a delay between training and a later test session. For the Nap group, efficiency of problem solving improved from training to test, but there was no change for the No Nap group. These findings suggest that for newly walking infants, sleep facilitates learning to solve a novel motor problem [22].

Conclusion

Small low wooden round tables are suggested for the first time in the medical literature as the best and the safest tool for learning to walk by babies.

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