

Baby walker use: injuries and developmental delay behind practicality

Uso de andador infantil: lesões e atraso no desenvolvimento por trás da praticidade

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ABSTRACT

Study and investigate scientific articles and clinical studies on the main injuries related to baby walkers such as concussion, intracranial hemorrhage and fractures of the skull and cervical spine among children aged 4 to 15 months, in addition to their impact on child development covering several countries. Evaluate and analyze the differing opinions on the subject.

Keywords: baby walkers, infant walkers, development.

RESUMO

Estudar e investigar científicos artigos e estudos clínicos sobre as principais lesões relacionadas com os andadores de bebês, tais como concussão, hemorragia intracraniana e fracturas do crânio e da coluna cervical entre crianças dos 4 aos 15 meses de idade, para além do seu impacto no desenvolvimento infantil, abrangendo vários países. Avalie e analise as opiniões sobre o assunto em differing.

Palavras-chave: andadores para bebês, andadores infantis, desenvolvimento.

SUMMARY

Baby walkers are used in home use by babies from 4 to 5 months up to 15 months of age due to the practicality and interactivity they provide for both parents and children. They are used worldwide and help with locomotion and play. However, health professionals are constantly concerned about injuries resulting from the use of baby walkers. The article aims to contextualize and analyze data from systematized studies in which there is a conflict of interest among those selected. It was observed that the injuries derived from the walker are more frequent due to external factors such as stairs and the presence of swimming pools at home without protections. These are injuries with a characteristic pattern of concussions, traumatic brain injury, cervical spine fracture and intracranial hemorrhages at the level of hospital admissions. Another worrying factor that is little discussed and observed in research is the delays in child development due to the use of the walker. Children who use it usually tend to have delays in taking their first independent steps compared to children who do not, as well as problems with gait and risk of falling. It is recommended to discontinue the use of baby walkers and educate parents and/or guardians about the different and complex variables.

1 INTRODUCTION

In 2004, baby walkers or baby walkers were banned in Canada. They are used as entertainment equipment for children aged from 4 months to 15 months, varying their practice according to the child's own individual development. About 50% to 77% of parents use the baby walker (3). The use occurs in the pre-ambulation age group of the child with the consent of the parents' customs, beliefs and personal interests (3). The use of baby walkers is a debated and questionable topic by health professionals such as pediatricians, physiotherapists and others, as well as guardians and guardians. According to some parents, there is a preference for the applicability of the baby walker and the motivation to help babies move around safely. They also claim that the child in the walker tends to be more closely monitored, spending more time with the child. However, professional opinion is usually antagonistic and most of them try to dissuade them from the opposite (2).

According to the Australian Physiotherapy Association (1), the use of so-called 'baby walkers', even when used by babies aged 4 to 5 months, are prone to the attribute of falling off the walker, stairs, in addition to the possibility of reaching objects that before, in reality, would be out of its scope. However, the most unattended point that needs further discussion is the delay in locomotor development. It is known that the child's Central Nervous System needs time to mature. According to Beckett and Taylor (1), the baby walker hinders the acquisition of the development

of the child's system, either by interfering with the spontaneity of the infant's locomotion process or by making him lose the visual experience of limb movement, which is fundamental for the growth and maturation of the infants. motor systems, as dictated by the American Society of Pediatrics (3).

2 METHODS

A literature review was carried out on the platforms PubMed, Cochrane and Google Scholar for related articles in English and Portuguese. We chose to use articles in the English language. All selected articles were included from 2013 to 2022.

3 RESULTS

We found 102 articles in PubMed, 22 citations in Google Scholar and 1 Cochrane citation. Among all, only 4 articles met the inclusion criteria. Only articles in English and studies from 2013 to 2022 were used. The studies are divided into 1 systematic review article, 1 data collection article, 1 cohort study and 1 research survey article.

4 CONCLUSIONS

In their work Shafeek MM et al (2016) carried out cohort research with 87 children divided into three groups according to the study criteria (group A, B and C) in which the main objective was to investigate the gait pattern in children independent of the walker. Group A does not use the baby walker, group B uses a little baby walker and group C was selected to be dependent on the baby walker. The result showed that there was a noticeable delay in the development of the gait of groups B and C in relation to group A. The article by Sims is a survey of data from an American survey through an entity called National Electronic Injury Surveillance System (NEISS) that collects data from hospitals to provide national injury estimates. The United States, although the number of injuries markedly decreased after the modernization of baby walkers in 1997, still had an average age of 8.2 months with a range between 6.9 and 9.7 months. Babies aged 7 to 10 months represent 68.3% of walker-related injuries, 59.1% of which are male. In 2010, new implementations were required related to the mandatory American safety standard in relation to the baby walker, reducing the number of injuries in infants. Badihian's article lacks information on the use of baby walkers or so-called "baby walkers" to address their effect on child development as it is a systematic review article. And the article by Barss, deals with a cross-sectional survey in the city of Al Ain in September 2005, in the United Arab Emirates. Only the middle class to upper

middle class Islamic population was surveyed, also excluding Indian and European families. Working mothers outside the home were included, delegating the supervision of younger children to older siblings or a caregiver. The sisters were from high school in government women's Arab schools and were selected from the last year aged between 17 and 18 years. According to the study, sisters are potentially more perceptive to injuries to children and household challenges in the Islamic cultural context. During the process, there was a self-administered questionnaire, and according to the sociodemographic variables and characteristics of the surveys, the risk of baby walkers was related to external factors such as the number of floors in a house, stairs and the presence of swimming pools. The data, when processed and sent to a new Irish study, found that baby walker use by the national population averaged 26 weeks, starting at 26 months and ending at 54 months (Garrett et al 2002). While in Canada the interval for the beginning and end of the use of the baby walker is the one mentioned above, from 4 to 15 months. (Health Canada 2007).

5 DISCUSSION

Article (1) is a cohort article in which 87 children participated in the study, with 49 children using a baby walker, representing 56.3% of the children according to the sociodemographic and epidemiological characteristics of the study. When comparing the age of achievement of independent walking in the 3 groups A (non-users baby walker children), B (low-user baby walker children) and C (High-used baby walker children) there was a difference between the groups. A and B, with a gain of 18 days of B in relation to A and between groups A and C with an average value of 35 days of increase of C in relation to A. It can be affirmed that the delay of groups B and C in the range of independent gait is due to the practice of using a babywalker. Group B used less than group C, having a delay of 16 days in relation to B. According to the researchers Siegel and Burton (1999), the use of the occluding walker, used at the time, did not allow the babies to see their limbs. lower limbs, impairing child development such as sitting, walking and seeing. However, Shiva et al. (2010) reported that they did not observe any difference between the research groups regarding locomotion in relation to the age at which the infants started to walk. Chagas et al. (2011) also confirmed that the use of the baby walker did not persuade the walking age. According to article (1), the weight and height of each infant were recorded only once during the entire study, confirming the homogeneity of all groups. The survey results reported a significant difference between groups A and B in relation to group C in the variables of step length and walk, reflecting the negative impact of the use of baby walkers. The significant decrease in stride and step length found in group C due to the marked decrease in hip flexion recorded in the same group during initial contact, but the decrease in hip flexion recorded also in group B during initial contact

did not affect the same variables. The initial gait pattern for an infant is characterized by a broad base of support during the standing and walking posture with the arm held in a high guard position, as the infant or child gains stability, dynamic balance appears at the base of support. And in relation to the variable step width, the result of the research revealed that groups B and C have a narrower support base because they initially have the support of a baby walker, which can lead to the child's fall.

Article (2), as it is a data collection work, reports that from 1990 to 2014 it is estimated that between 230 and 676 children under 15 months of age were treated in American Emergency Departments for injuries resulting from the use of baby walkers. Injuries are the repercussions of external factors, as previously mentioned, mainly on stairs. Characteristics are concussions, head injuries, neck or skull fractures, intracranial hemorrhages, leading to serious hospital admissions. There are also minor injuries. Baby walker injuries can be described identically across all regions of the globe. During the period 1990 to 2003, there was an 84.5% decline in baby walker injuries due to a 91% decrease in falls from stairs. According to this article, there was a period of public awareness about the injuries caused by the use of baby walkers as a result of advocacy groups. These same groups requested a ban on baby walkers in 1992 in the United States, but were unsuccessful. However, there has been the growth of stationary activity centers as an alternative to baby walkers and improvements in the safety standard of the voluntary baby walker. The voluntary safety standard for American baby walkers for baby walkers was established in 1986, but as it was flawed, it was improved in 1996 to avoid being revised and to prevent falls on stairs. As early as 1997, a law went into effect requiring baby walkers to be wider than a standard door or to lock up if ≥ 1 wheel falls over the edge of a step. Improvements continued until 2010 when the local body (CPSC) issued a mandatory standard for baby walkers and included stricter requirements. In addition to standardizing the method of evaluating falls on stairs, creating specifications for test equipment and a new formula for calculating the launch distance that incorporated the weight of the child walker. The mandatory rule also added a parking brake test for child walkers that had a parking brake, which was adopted from European standards. The average number of baby walker injuries has decreased by 22.7% over the past 4 years. However, their numbers are still uncertain.

The systematic literature review article (3) reported on the review of clinical trials in which infants used walkers and did not obtain significant changes in both injuries and gait. During the first study, six pairs of twins aged 10 months were mentioned and followed until they took the first 4 steps independently of their parents and without the use of walkers. In this study, the article criticizes the age of infants for being an age close to the beginning of the first walks. Later, five years later, he again followed a new clinical trial. This time with 15 pairs of twins with an average age of 4 months

in order not to repeat what was considered the limiting factor of the previous trial. No significant differences were found again. The research author considered that both studies failed. The article also analyzed 66 infants aged 8 to 12 months divided into high, low and non-user groups of health professionals to assess motor development. The high-risk group had delayed onset of prone locomotion. No difference was mentioned or observed between the age of sitting or walking between the groups. The major limitation of the studies analyzed by the article (3) was the lack of a control group in their analyzed clinical cases. Therefore, the limitations of the cited article (3) plus the different results reported and the reviewed articles, failed to combine and analyze them. It was also limited to the English language only. On the other hand, studies with a higher level of evidence do not claim that there is a delay in child development resulting from the baby walker, whereas larger observational studies with and with fewer methodological problems report the opposite. In this article there is no report of injury due to the baby walker, and the cases of delays in child development and locomotion do not justify its ban. The article did not come to any clear conclusions to be adapted. But it is against the ban. And he cites the cautious use of the baby walker, mainly for the parent-child relationship.

Article (4) is research that reports the incidence of baby walkers in the United Arab Emirates are high in which half of the families have a baby walker. On average, 1 of these children has already suffered injuries, extending to 2 injuries per family. There were 50 emergency room consultations, 18 hospitalizations, 5 disabled 1 death per 1000 child years. Compared to the United States, the incidence is 8.9 injuries per 1000 children, 1.7 of which are serious. The external cause is cited as the main source of danger. Homes are the main place for serious injuries in the use of baby walkers, the most frequent factors are: falling down stairs in swimming pools. Many families in the country live in multi-story homes with indoor and outdoor stairs. For these households, the risk of hospitalization was more than doubled, long-term disability was 17 times greater. This article reports that in Australia, 65% of households that use baby walkers have stairs, with 77% of injuries involving falls, and that stairs were responsible for 47% of hospitalizations. This result, along with that of the country, contrasts with the result of the city of Baghdad, where most of the houses are flat and one-story. Another reported problem is domestic swimming pools. The article elaborated on a study in which there were 31 incidents involving babies in baby walkers who fell into swimming pools with 12% of families having a swimming pool. Of the families with a pool, 9 to 29% did not have child protection. The characteristics of the injuries are the same as those already mentioned: concussions, neck or skull fractures, head trauma, intracranial hemorrhages, due to falling down stairs and leading to serious hospitalizations. It is common in the UAE for mothers of the Islamic population who worked outside the home to leave household chores

including supervision of younger brothers to sisters around the age of 17 due to their cultural background. It is difficult to obtain an average of injury indicators by child walkers from Islamic families in the care of the sisters. The lack of an ICD 10 corroborates the situation. Their sociocultural context does not allow a certain approach for interviews, only through population surveys or by institutions. A point of exposure for children is the time per day and days of weeks that babies are left in walkers. There can be great distinctions between families, including siblings, and this is information that no researcher will have easy access to. Some Islamic students were used in the survey to obtain information and reports about the country's families, validation was complicated, but new mothers want information about baby walkers. There is no published data on emergency room visits and hospitalizations for use of baby walkers. Indirectly, 339 were interviewed, there were 259 injured children, 57 taken to the PA, 13 hospitalizations, 15 disabled and no deaths.

6 CONCLUSION

The concern of health professionals regarding the use of baby walkers is pertinent. As noted, there is a significant difference in the gait and base formation of groups A, B and C of infants (1), with some groups having a narrower base and leading to falls. Injuries resulting from a baby walker have more often external causes resulting from the fall, especially in home environments, such as stairs and swimming pools. These are dangerous injuries because they commonly involve the region of the skull and cervical spine and can be sequelae. It is noted that in some countries there is a decrease in the number of injuries related to baby walkers, as in the United States after the implementation of the mandatory safety standard in 2010 (2). On the other hand, there are no official figures from the United Arab Emirates, there are indirectly through surveys carried out by students in schools, due to the Islamic culture itself. However, there is a greater awareness of mothers about injuries from the use of these devices with a decline in informal and official numbers (4). The last article disagrees with the others when reporting on the scarcity of evidence regarding problems in child development resulting from the custom of using the baby walker (1). In conclusion, it is recommended to stop and/or not start using the equipment, educate parents, guardians and/or guardians about the dangers of both injuries and developmental delay that children are subject to when using the baby walker. And if the injury numbers don't go down, the study even agrees with banning sales as Canada chose to do in 2004.

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CONFLICT OF INTERESTS

The authors state in the paper entitled “Infant walker use: injuries and developmental delay behind practicality. Injuries resulting from the baby walker due to practicality.” there was no conflict of interest.

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