Literature review for Baby walkers leaflet 2019

Introduction

Baby walkers remain popular throughout the world despite concerns over their safety and doubts over their effect on child development. A study in the USA in 1998 (Bar-on ME) found 77% of 150 parents surveyed used them, believing them to be beneficial and to enhance development of walking. In the UK a similar questionnaire based study (Kendrick 1998) showed 50% of respondents using baby walkers. A study of Iranian infants in 2010 found 54.5% of 414 attending health clinics used a walker.

Baby walker sale and use has been banned in Canada since 2004 and the American Academy of Pediatrics called for a ban in 2001 following an estimated 8800 children younger than 15 months being treated in hospital emergency departments in the United States for injuries associated with infant walkers in 1999. The European Child Safety Allliance also recommends parent education to reduce the use of walkers due to the high incidence of walker related injuries.

This review was conducted in May 2018 to evaluate the available evidence to support the APCP advice leaflet 'Babywalkers - are they necessary? Information for parents'

Search Strategy

Databases: PubMed, CINHAL, OVID, AMED, PEDRO and CSP Discovery search interface

Key Words: Baby walkers, child development, walking, ambulation, developmental delay, accidental injury

Inclusion criteria were:

- Papers relating to effects of walker use on child development
- Papers relating to injury associated with walker use
- Papers in English

There is no evidence that baby walkers have beneficial effects on walking.

Research suggests that Baby walkers may slow down normal development with changes in muscle activation in those infants that use them.

A number of studies link baby walkers with injuries

If using a walker

Limit the use of the walker

Check that the baby walker conforms to European Standard EN 1273: 2005 –

Use a stair gate

Do not use walker in the kitchen when cooking

Never leave an infant unattended in a baby walker

Results

Effects on child development

There is no evidence that use of a baby walker accelerates the acquisition of independent walking.

There is some evidence to suggest that the use of a baby walker affects normal development of crawling, sitting and walking but

the evidence is not high quality and the significance for the normally developing child is unclear.

A systematic review (Badihian 2017) concluded that there is insufficient evidence to call for a prohibition on walkers. A second review by Burrows and Griffiths (2002) did a pooled analysis of the papers review and found a delay of between 11 and 26 days in acquisition of independent walking but they are uncertain of the significance of this delay.

There are 2 RCTs Kauffman 1977, Ridenour, 1982.These clinical trials on twins showed no significant difference in age at onset of walking between the twin who used a walker for one or two hours per day and the one who did not.The studies involved small numbers (n=12 and n=15) and there is no detail of any power calculation so it is unclear if the results reach statistical significance. EMG recordings showed different muscle activation in those who used walkers and the authors concluded that use of a baby walker modified the mechanics of the infant's locomotion in a number of important ways due to the possibility of moving despite mechanical errors. There was no follow up to detect if there were any lasting changes in muscle activation.

In a retrospective cohort study Siegel and Burton (1999) examined the effect of walker use on 109 infants recruited via a postal questionnaire, and later, from contact at supermarkets, day-care centres, laundromats and paediatricians' waiting rooms in order to add to the non-walker group. 56 used a walker and 53 had not used one. Walker use was associated with developmental delay in sitting, crawling and walking assessed using the Bayley psychomotor development index. The mean delay in walking was 26 days.

Crouchman et al (1986) interviewed parents of 66 infants at a community health clinic about their child's developmental milestones and walker use. They divided their sample of walker users into 3 groups according to the time spent in the walker. The 20 infants in the high use group (4 hours per day) were significantly delayed in onset of 'prone locomotion' but there was no difference in onset of sitting or walking, compared to those in the other groups.

Garret at al (2002) recruited 190 infants from day centres in Ireland. 54% used walkers. The data was collected from parental questionnaires. The authors reported a mean delay of 21 days in walking.

Thien et al (1997) recruited 185 infants from attendees at a 'well child' developmental assessment session at a government polyclinic in Singapore. A trained interviewer administered the Denver Developmental Screening Test – Singapore version (DDST-S) 90% of the sample used a walker – although the data do not say for how long. 18 of the 167 walker users exhibited abnormal or questionable DDST-S results. 17 showed delay in the gross motor sector in sitting without support, weight bearing, or standing holding on. After 2 months without walker use all infants had returned to normal DDST-S scores. All of the 18 who did not use walkers had normal DDST-S scores.

Chagas et al (2011) interviewed 26 caregivers about walker use. 14 out of the 26 used walkers. There were no statistical difference in scores on the Alberta Infant Motor Scale (AIMS) between walker users and non-walker users and no difference in age of acquisition of independent walking.

Engelbert et al (1999) held the use of baby walkers to be responsible for delayed motor development, contractures of the calf-muscles and motor development mimicking spastic diplegia in 2 infants who used a walker while learning to walk.

Baby walkers and accidental injury

Following concerns about high levels of injury associated with walker use in the USA, a safety standard ASTM-F977-96 was introduced. This stipulated that walkers must be wider than 36 inches to prevent babies from passing through the average doorway and introduced a braking system to stop the walker moving if one wheel drops off the ground to prevent falling downstairs. (2001)

In 1995, an estimated 20,100 children younger than 15 months were treated in U.S. hospital emergency departments for **baby** walker-related **injuries**. By 2000, that number had dropped to an estimated 7,400 young children. (Jacobson 2002)

A similar safety standard was introduced in Europe - EN 1273: 2005.

Le Blanc et al (2006)reported on a study of 391 children under 7 attending 5 emergency departments in Canada between Jan 1995 – Dec 1996 who had injuries. They matched them with controls who attended with acute non-injury-related conditions. They found that 21% of homes with a child under one in the injury group used an infant walker. The presence of a baby walker was one of 5 hazards that reached significance in the study with walkers accounting for 4% of accidents over all.

Thein et al (1997) found that 12.5% of walker users had one or more, mostly minor, injuries. Most injuries involved bruising or swelling of the head, forehead, face or cheeks.

Shiva et al (2010) studied 414 infants attending health clinics in Iran. Baby walkers were used by 54.5% of infants. !4.1% of infants who used walkers had sustained injuries although these were reported as mostly trivial.

Kendrick and Marsh (1998) did a questionnaire based study in Nottingham. They had 1594 respondents. Eight hundred and four (50.4%) parents reported using a babywalker occasionally or often. Families reporting walker use were significantly more likely to report a range of unsafe practices than families not reporting walker use, including not using stair gates or fireguards.

<u>Conclusions</u>

- There is no evidence for any benefit of walker use
- There is some evidence that walkers can adversely affect motor development.
- There is evidence that walkers are associated with an increased risk of accidental injury

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