

Baby walkers . . . time to take a stand?

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SUMMARY Experience in our hospital and figures from the Home Accident Surveillance System indicate that the number of accidents involving baby walkers is increasing. Safety specifications issued by the British Standards Institution are rarely, if ever, met in full by manufacturers. Home accident prevention measures have been shown to be of limited benefit. We advocate more stringent implementation of safety features in the design of baby walkers.

Personal observation suggested that our hospital was treating an increasing number of injuries associated with the use of baby walkers. We report three cases of accidents of this kind. All were admitted to this hospital within a recent three month period.

Case reports

Case 1. A 7 month old boy was admitted to the burns unit after sustaining full thickness burns to the scalp apparently as a result of tipping backwards into an open fire while in his walker (Fig. 1). At the time of the accident he was accompanied only by his sister, who was less than 3 years old. Examination revealed full thickness burns over two thirds of his scalp. At the pole of the occiput there was an area of exposed skull vault measuring 6×7 cm, which was later found to be non-viable. His initial course was stormy and in the ensuing four months he underwent seven major surgical procedures. He eventually recovered without neurological deficit. There was a large area of scalp, however, that remained hairless.

Case 2. A 5 month old boy was admitted to the surgical ward after he had fallen part way down a flight of stairs in his walker. His fall was broken by his mother. He banged his head but did not lose consciousness. Examination revealed a drowsy child with a swelling on the right side of his head. X ray film confirmed a linear fracture of the parietal bone. He was detained in hospital for 48 hours and observations remained stable. Outpatient review three months later revealed no abnormality and he was discharged.

Case 3. A 7 month old boy was admitted to the surgical ward after sustaining injuries to his head and right arm. A short time previously he had been travelling in his walker when it tipped over a step in the kitchen, thrusting him forwards between a wall and a door. He was alone at the time of the accident. He screamed but subsequently became drowsy.



Fig. 1 Head of case 1 at presentation, showing full thickness burns over two thirds of his scalp and 6×7 cm area of exposed skull vault at pole of occiput.

Examination revealed a swelling in the left temporo-frontal region together with swelling and abrasion of the left forearm. X ray films of the skull and forearm revealed no bony injury. He was observed for 48 hours and remained well. At outpatient review six weeks later he was thriving and was discharged.

Discussion

There have been a number of reports in recent years on children's home safety and accident prevention,¹⁻⁵ but there have been few dealing specifically with baby walkers. Reports from the United States in 1982 called attention to the dangers of baby walkers.^{6,7} We present evidence that such injuries are an increasing problem in this country also.

Baby walkers are devices that provide preambulatory infants with postural support in addition to offering them the opportunity to experience bipedal locomotion. They are intended to simulate independent walking and by so doing, it is argued, encourage and even accelerate the early acquisition of this skill. Without doubt they provide a number of infants with some amusement for many hours, allowing the parent and child a level of independence previously unavailable. It is not difficult to imagine that this very independence, so suddenly acquired, might lead to occasional lapses of attention on the part of a harassed adult.

The design of baby walkers is variable. Most have a seat or perineal strap, which is suspended from a rigid or folding frame. The frame is supported on a number of wheels or castors. Some designs include a small table surface for food and playthings. It is only recently that these devices have become commonplace; 30 years ago they were rarely found in any but the most privileged home. Nevertheless, a design that is currently popular has much in common with a Victorian example (Figures 2 and 3).

Figures for accidents in the home have been gathered by the Home Accident Surveillance System (HASS) since its inception by the Department of Trade in 1977.⁸ Accident data, gathered from 20 participating accident and emergency departments in England and Wales, are published annually by HASS.⁸ Figures for accidents that involve baby or child furniture and transport devices are presented in the Table. Figure 4 is a graph for accidents that specifically involved baby walkers. Baby walkers were involved in a much larger number of accidents in 1984 than they were in 1977, rising by a factor of 235%. Over the same period accidents that involved all baby and child transport devices rose by a factor of 128% and those that involved baby and child furniture by 118%. In 1977 accidents with baby walkers comprised 13.5% of accidents that involved

baby and child transport devices. In 1984 this figure was 20.2%. Safety standards recommended by the British Standards Institution (BS 4648)⁹ (but not enforceable by law) have undoubtedly improved safety margins, but by their widespread use baby walkers are an increasingly common cause of injury in the preambulatory infant.

Laws concerning the use of appliances and devices within the home are almost impossible to enforce. 'Official recommendations' rarely attract a satisfactory level of compliance. Even in the emotive and

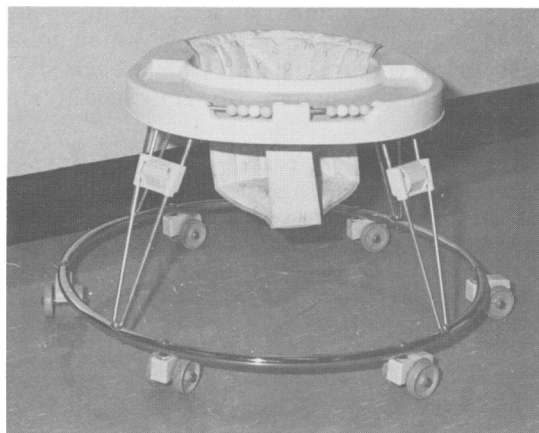


Fig. 2 A popular modern baby walker, showing typical design features of a seat suspended from a rigid frame, which is supported on a number of wheels. There is also a small table surface. (Compare with Fig. 3.)

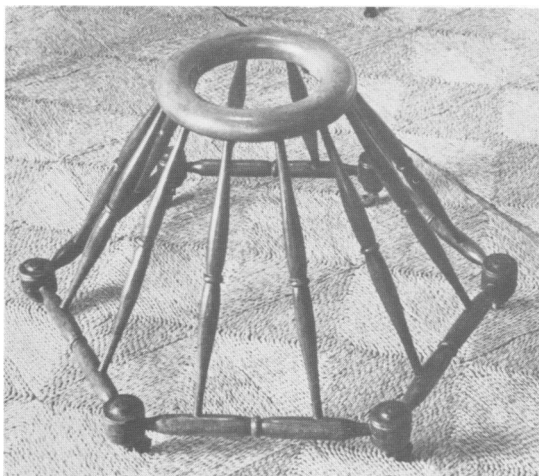


Fig. 3 A Victorian baby walker, showing the similar basic design features to modern baby walkers. (Compare with Fig. 2.)

Table Incidence of accidents involving baby walkers and other baby furniture and transport devices (data from Home Accident Surveillance System 1977-84)

Year	Total No of accidents (all ages)	Accidents involving			Baby walker accidents as	
		Furniture and transport devices	Transport devices	Baby walkers	% Of transport only	% Of furniture and transport
1977	77616	571	284	77	27.1	13.5
1978	67805	509	245	75	30.6	14.7
1979	69007	608	256	84	32.8	13.8
1980	105299	913	448	143	31.9	15.7
1981	122428	1274	620	249	40.2	19.5
1982	104126	1023	512	205	40.1	20.0
1983	98878	996	484	191	39.5	19.2
1984	110254	1275	650	258	39.7	20.2

'Furniture' includes cots, baby chairs, baby bouncers, bouncing cradle, play pens, potties, baby baths, safety gates, changing mats, and others. 'Transport devices' include prams, pushchairs, buggies, carry cots, safety harness/reins, baby walkers, baby slings, and others.

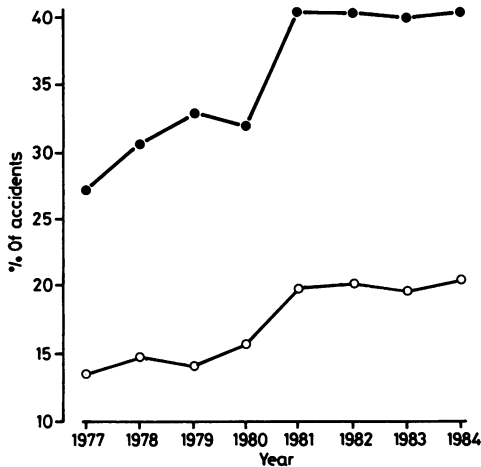


Fig. 4 Percentages of child and baby accidents that involved baby walkers for 1977-84. ●—● = Percentage of transport accidents that involved baby walkers; ○—○ = percentage of transport and furniture accidents that involved baby walkers.

potentially lethal area of infant restraint in motor vehicles, a recent study revealed that only 40% of a sample complied with official recommendations.¹⁰ The British Standards Institution recommends that safety warnings be placed on both the packaging and the product instruction sheet of baby walkers.⁹ They should include specific advice about never leaving the infant unattended and never using the device near steps, stairs, domestic fires, or hot appliances.⁹ Despite this, most accidents occur in circumstances that contravene the written warnings.¹¹ Between 80% and 90% of injuries that require admission to hospital follow falls down steps or stairs.¹¹⁻¹³ Up to 20% of infants are unaccompanied at the time of injury.¹¹⁻¹³ Warnings on packaging or instruction

sheets are notoriously easy to ignore or forget, and it could be argued that in the excitement of seeing baby take his 'first steps' parents might be even more liable to such an oversight. The British Standards Institution, however, also recommends that a safety warning be inscribed or stamped in permanent bold red lettering on a white background on the baby walker itself (namely 'WARNING. NEVER LEAVE YOUR BABY ALONE IN THIS WALKER'). Few models at present comply with this recommendation, yet a prominent warning so situated would be a daily reminder of potential hazards long after initial excitement has subsided.

Currently, there is no obligation on the part of designers or manufacturers of baby walkers to comply with the recommendations of the British Standards Institution nor on the part of retailers to ensure that they have been met. A recent investigation by the Trading Standards Department in this city, prompted by an increasing volume of complaints from the public, concluded that 'none of the models examined has been found to comply fully with British Standard 4648'. (Mawdsley PJ. Personal communication.) In these times when the law demands that our motor vehicles are roadworthy, that we are strapped in or helmeted, and have a certificate of competence to drive it seems strange that we do not insist through legislation on the same standards of safety for our dependent infants, this youngest group of 'drivers'.

The recommendations of the British Standards Institution on baby walker design concentrate largely on stability, as overturning is a common factor in most serious accidents.^{6 7 11-14} Although few models meet the recommendations in full, a large number are intrinsically stable. We believe, however, that overturning must always be considered a potential hazard. If these devices are to remain freely available further consideration should be given by

designers not only to walker stability but also to infant protection in these almost inevitable accidents.

Whether public education on home accident prevention produces any real benefit or not remains a matter of some contention. The effects of television programmes and health education campaigns specifically dealing with children's home safety have been investigated and have produced equivocal results.¹⁻⁵ Studies failed to show any measurable improvement in accident statistics after a television campaign² and conventional education techniques.³ Most authors, however, are in agreement that such efforts may have longer term effects, including heightened awareness among health care workers and, perhaps, the public.¹⁻⁵

Present measures for controlling the design and use of baby walkers are apparently inadequate in terms of safety. We suggest that further safety features be incorporated in all future models and that legislation be passed to ensure the compliance of manufacturer and supplier. In addition, a programme of public education in the use of all baby furniture and transport devices may be beneficial.

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References

- ¹ Jackson RH, Gaffin J. The child accident prevention trust. *Arch Dis Child* 1983;**58**:1031-3.

- ² Colver AF, Hutchinson PJ, Judson EC. Promoting children's home safety. *Br Med J* 1982;**285**:1177-80.
- ³ Minchom PE, Sibert JR, Newcombe RG, Bowley MA. Does health education prevent childhood accidents? *Postgrad Med J* 1984;**60**:260-2.
- ⁴ Gallagher SS, Hunter P, Guyer B. A home injury prevention program for children. *Pediatr Clin North Am* 1985;**32**:95-112.
- ⁵ Pearn JH. Current controversies in child accident prevention. An analysis of some areas of dispute in the prevention of child trauma. *Aust NZ J Med* 1985;**15**:782-7.
- ⁶ Kavanagh CA, Banco L. The infant walker. A previously unrecognised health hazard. *Am J Dis Child* 1982;**136**:205-6.
- ⁷ Fazen LE 3rd, Felizberto PI. Baby walker injuries. *Pediatrics* 1982;**70**:106-9.
- ⁸ The Home Accident Surveillance System, 1977-1985. London: Consumer Safety Unit, Department of Trade and Industry, 1986.
- ⁹ British Standards Institution. *Safety requirements for baby walking frames. Standard BS 4648*. London: British Standards Institution, 1985.
- ¹⁰ Penry-Jones K, Bowell DR, Tongue R. Restraint of babies in cars. *Br Med J* 1986;**292**:591.
- ¹¹ Whittington C. *Accidents involving baby walkers*. London: Safety Research Section, Consumer Safety Unit, 1984.
- ¹² Wallman S, Paulson J. Baby walker-related injuries. *Clin Pediatr* 1984;**23**:98-9.
- ¹³ Rieder MJ, Schwartz C, Newman J. Patterns of walker use and walker injury. *Pediatrics* 1986;**78**:488-93.
- ¹⁴ Taylor F. Head injuries and baby walkers. *Can Med Assoc J* 1985;**132**:96.

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