



Baby Walkers: An Attempt To Assess Injury Risk Compared With Some Other Nursery Products

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NISU was asked to address the question of whether baby walkers present a higher level of risk than other nursery products..

The data set available for undertaking this analysis in Australia is the ISIS system. Between 40 to 50 hospital emergency rooms throughout Australia have provided data to NISU over the period June 1986 to June 1993. Hospitals cooperating with the ISIS system form a convenience sample and therefore will not necessarily be representative of all injured persons who present to hospitals in Australia. For these reasons, ISIS data should be interpreted with care, particularly in considerations about the absolute frequency of injury occurrence, and in drawing regional comparisons. The data are generally better suited to characterising the circumstances in which injury occurs, the types of injury associated with particular causal factors, and the relative importance of particular classes of injury.

ISIS data was used to undertake a comparison of the risk of injuries related to baby walkers compared to other nursery products. A total of 12,360 injuries to children aged from 6 to 12 months were extracted. Of these 631 involved baby walkers. A review of product related factors showed this to be the highest single product category for this age group. In order to provide a comparison, 7 other nursery products were selected. These consisted of the five next most frequent product categories in the injury data base: high chairs, strollers, changing tables, prams and cots, and two products used for 'child minding': baby exercisers and playpens.

The ISIS system is a sentinel collection. It is not possible to calculate actual injury rates as the population served by contributing hospitals is unknown. The population served is however constant across products (eg baby walkers, cots, prams etc.). The number of injuries for each product can be viewed as an unbiased estimate and the ratio of these counts (say for baby walkers and cots) can be viewed as an unbiased estimate of the relative frequency of injury. The number of cases in the age group under study is large and therefore sampling errors would be small. The data are appropriate for assessing the relative hazardousness of products.

Results

Table 1 shows the number of injuries and admissions from each product category and the relative frequency index for each product when compared with baby walkers. The index represents the numbers of injuries involving that product for each 100 injuries involving baby walkers.

All of the products in the comparison show a much lower frequency of injuries for the target age group than baby walkers. The relative severity of baby walker injuries is reflected by the fact that the relative frequency index for admissions related to comparison products, is consistently lower than for all injuries. One exception is the case of baby exercisers where there is a low rate of injury but the proportion of those cases admitted is relatively high.

Table 1
Numbers Of Injuries And Admissions And Relative Frequency Index (RFI) Of Baby Walker Related Injuries To Other Nursery Products Children Aged 6 To 12 Months

	ALL INJURIES N	RFI of injury	ADMISSIONS N	RFI of admission
Baby Walker	631	100.0	110	100.0
High Chair	285	45.2	42	38.2
Strollers	218	34.5	29	26.4
Changing Tables	195	30.9	27	24.5
Prams	185	29.3	23	20.9
Cots	127	20.1	12	10.9
Baby exercisers	30	4.8	10	9.1
Playpens	12	1.9	1	0.9
Total	1683		254	

Baby walkers are generally used between the age when children crawl and when they can walk independently. Table 2 shows how the relative frequency index changes over this period. Overall the baby walker shows a pattern of higher risk although high chairs, strollers and cots show higher index scores for children 12 months old. This possibly reflects lower use of baby walkers as many children are walking by this time.

Table 2
Relative Frequency Index of Baby Walker Injuries And Admissions To Those Related To Other Nursery Products By Age In Months

	Age in months							
	6	7	8	9	10	11	12	6 to 12
ALL INJURIES								
Baby Walker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
High Chair	37.5	23.7	21.5	36.4	55.7	120.0	200.0	45.2
Strollers	40.6	27.1	13.3	27.3	27.3	90.0	161.9	34.5
Changing Tables	56.3	32.2	28.5	19.7	28.4	22.0	66.7	30.9
Prams	37.5	29.7	19.0	23.5	28.4	44.0	85.7	29.3
Cots	15.6	11.0	14.6	12.1	18.2	48.0	119.0	20.1
Baby exercisers	17.2	10.2	0.6	2.3	0.0	2.0	9.5	4.8
Playpens	0.0	0.8	1.3	3.0	2.3	4.0	4.8	1.9
ADMISSIONS								
Baby Walker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
High Chair	25.0	15.6	15.4	38.5	57.9	100.0	300.0	38.2
Strollers	25.0	9.4	15.4	23.1	15.8	180.0	133.3	26.4
Changing Tables	25.0	15.6	26.9	30.8	26.3	40.0	33.3	24.5
Prams	16.7	9.4	11.5	23.1	21.1	80.0	133.3	20.9
Cots	8.3	6.3	19.2	7.7	5.3	0.0	66.7	10.9
Baby exercisers	33.3	9.4	0.0	0.0	0.0	20.0	66.7	9.1
Playpens	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.9

The estimates above do not take into account the relative frequency of use of the products. There are no detailed data on the length of time to which children of this age are exposed to each product. Ownership by households where there was a child under the age of one year was estimated for Melbourne by the Australian Bureau of Statistics for three products, baby walkers, prams and strollers and high chairs¹. Baby walkers were further assessed as being in use or not in use.

If it is assumed that ABS findings for Melbourne apply to the population from which the ISIS cases came, then it is possible to derive an exposure adjusted relative frequency index. Index scores have been adjusted by the ratio of baby walker ownership to ownership of the other products. (Table 3) The ownership of high chairs and prams and strollers was higher than for baby walkers, therefore the index score has decreased. When allowance is made for the proportion of baby walkers not in use, the index decreases further. This is based on the assumption that all prams / strollers and high chairs were in use and only 20% of households had baby walkers in use. (Based on ABS data). This indicates that when exposure is considered baby walkers are still far more likely than comparison products to be involved

in injury events.

Table 3
Relative Frequency Index Of Baby Walker Injuries Adjusted For Ownership And Use Of Both Products

	Unadjusted	Adjusted for ownership	Adjusted for ownership and use
Pram or stroller	63.9	19.8	13.2
High chair	45.2	16.7	11.2

Table 4 considers injuries resulting in admission. Once again, the low index for comparison products indicates a far higher risk for baby walkers even after taking into account ownership and use.

Table 4
Relative Frequency Index Of Baby Walker Admissions Adjusted For Ownership And Use Of Both Products

	Unadjusted	Adjusted for ownership	Adjusted for ownership and use
Pram or stroller	47.3	14.6	9.7
High chair	38.2	14.1	9.4

It is possible that the high relative frequency of baby walker injuries may be due to the number of hours of use of baby walkers rather than a high risk per hour of use. If it is assumed that each of the product types has the same risk per hour of use as baby walkers then the number of hours use required to produce an equal number of injuries and admissions as baby walkers can be estimated for three nursery products. The results are shown in Table 5. The results show that even low hours per day use of baby walkers would require almost constant use of the other products examined to result in the same number of injuries. This suggests that an assumption of equal risk per hour of use is unlikely to be correct.

Table 5
Estimated Number Of Hours Of Exposure To Other Products To Produce Injuries And Admission Numbers Equivalent To One Hour's Use Of A Baby Walker.

	NO. OF HOURS
INJURIES	
Pram or stroller	8
High chair	9
Cot	25
ADMISSIONS	
Pram or stroller	10
High chair	11
Cot	46

Note: Calculations are based on Melbourne estimates of baby walker use. 1

Discussion.

Comparative risk.

Baby walkers show a much higher level of risk than other nursery products. It should be noted that both prams / strollers and high chairs have design and safety harness problems which require attention and which, if rectified, would result in an increase in the measured relative risk of baby walkers. The highest relative frequencies of injury and admission associated with baby walkers are in the age groups seven to nine months. These are the main age groups targeted for baby walker sales. In the absence of detailed exposure information it is impossible to judge whether this is due to increased exposure at these ages. While detailed exposure data is lacking, the estimates of relative frequency show such a marked excess for baby walkers that it is unlikely that differential exposure would account the imbalance. In any case, the absolute and relative numbers of injuries, regardless of exposure, justify some preventive action.

Design difficulties.

Baby walkers are targeted at children with very limited abilities. Among those children aged 6 to 12 months injured in a baby walker, in excess of 50% of injuries involved stairs or steps. This is what might be expected given the abilities of the child at that age. The task of perceiving a change in level, assessing the risk and responding appropriately is almost certainly beyond the capability of such young children 2.

Society already has recognised the need to prevent access to products which are not within the capabilities of the user. For example, driver's licences are not issued until sixteen years of age in any state and there is a move to introduce a uniform 18 year old limit. Small parts in toys are a recognised hazard and labelling warns parents not to provide access to such toys among children under three years of age. The paradox of the baby walker is that it specifically targets a product at an age group that does not have the developmental capabilities to use it safely and by the time perception improves to the point where children can safely use a baby walker, they no longer need it. It can therefore be argued that a case could be made that injuries are caused by the product in that its design fails to adequately take into account the developmental abilities of the targeted user.

A product which does not take into account the developmental abilities of the prime user and which moves at speeds of up to 1 metres per second 3, which increases the kinetic energy potential of any impact by raising the heaviest part of the child, the head, above standing height and allows it to accelerate to high speeds, carries risks which cannot be realistically managed by supervision. Changes to the home environment to stop access to stairs and steps and other dangerous situations would need to be extensive in many homes and would cause difficulties for other residents and would be likely to fail as they would require repetitive human action to maintain the protective environment.

Conclusion

Baby walkers carry a risk of injury which is considerably elevated compared to other nursery products. Baby walkers fail to take into account the developmental abilities of the prime user in a way which directly contributes to injury. The design of the baby walker can therefore be considered faulty.

References

1. Australian Bureau of Statistics, *Safety in the Home Melbourne* ABS Melbourne 1992 Tables 18, 24,28.
2. Valsiner J, 1985 Theoretical issues of child development and the problem of accident prevention. In Garling T and Valsiner J, (eds) *Children within environments* (pp13-36) New York: Plenum
3. Federal Bureau of Consumer Affairs *Discussion paper Trade Practices Act 1974: Division 1A of part V: Consumer Product safety: Need for mandatory action: Baby Walkers* Canberra FBCA 1993. pg 9

Contact us:

Tel: +61 8 8201 7602

Fax: +61 8 8374 0702

[Send an Email](#)

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NISU is a collaborating unit of the Australian Institute of Health and Welfare
jointly funded by AIHW and the Commonwealth Department of Health and Ageing

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