

# Locomotor milestones and babywalkers: cross sectional study

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BMJ 2002;324:1494

Few guidelines promoting good health in children are available.<sup>1</sup> Investigations into the development of standing and walking in infants who used babywalkers (wheeled seats that allow infants to move around with their feet on the floor) obtained conflicting results. Crouchman (64 infants) and Siegel and Burton (109 infants) found that the use of babywalkers was associated with delay in crawling.<sup>2,3</sup> In contrast, no significant differences in achieving independent walking were seen by Crouchman or by Kauffmann and Ride-nour (6 sets of twins) in infants who used babywalkers compared with non-users.<sup>4</sup> Siegel and Burton, however, found that babywalker users achieve independent walking at a later age than non-users.<sup>3</sup> We compared the age at which infants who used babywalkers and those who did not reached locomotor developmental milestones.

## Participants, methods, and results

We performed a cross sectional survey of normal healthy infants born at term attending day care centres registered with the Foyle Health and Social Services Trust. A prestudy calculation identified a necessary sample size of 200. We asked parents to record the age at which their child reached the developmental milestones of raising the head when prone, rolling over, sitting with support, sitting alone, crawling, standing with support, walking with support, standing alone, and walking alone. The questions were derived from the Northern Ireland personal child healthcare record. We obtained informed consent from responding parents. The legal department of the Central Services Agency confirmed that ethical approval was not required.

Nine out of the 10 day centres chosen at random from 31 centres agreed to take part. Of 250 parents whose infants attended these nine day care centres 207 (83%) responded to a brief, circulated, anonymous, confidential questionnaire. We excluded 17 premature infants leaving 190 valid responses (83 boys and 107 girls). Given a standard deviation of 30 days, we designed the study to have 90% power to detect a two week difference in the mean age at achieving the developmental milestones. We performed linear regression and *t* tests.

One hundred and two infants used babywalkers (54%; 48 boys and 54 girls) starting at a median age of 26 (interquartile range 26-28) weeks and finishing at 54 (50-54) weeks. The median duration of use was 26 (22-29) weeks. Achieving crawling, standing alone, and walking alone occurred later in this group (table). We excluded rolling over, at a median age of 24 (21-28) weeks, as it overlapped the start of babywalker use. Babywalker use was not associated with achieving sitting with support, sitting alone, standing with support, and walking with support. We found strong associations, however, between the amount of babywalker use and the extent of developmental delay. For example, each aggregated 24 hours of babywalker use was associated with a delay of 3.3 (95% confidence interval 2.5 to 4.1) days in walking alone and a delay of 3.7 (2.9 to 4.4) days in standing alone.

## Comment

This study provides additional evidence that babywalkers are associated with delay in achieving normal locomotor milestones. Babywalkers are known to increase the risk of injuries in infancy.<sup>5</sup> The use of babywalkers should be discouraged.

Contributors: MG helped design the trial, analysed data, interpreted the results, wrote the paper, and organised, supervised and checked the work. AMMcE had the initial idea, did a literature search, collected and analysed data, and helped write the paper. AS designed the trial, analysed data, interpreted the data, and wrote the paper.

Funding: No additional funding.

Competing interests: None declared.

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(Accepted 18 December 2001)

Age of reaching locomotor milestones in babywalker users and non-users

Milestone	Mean age milestone achieved (weeks)			<i>t</i> test (df=188)	
	Babywalker non-user (n=88)	Babywalker user (n=102)	Difference between babywalker users and non-users (95% CI)	P value	<i>t</i> score
Raise head	18.22	18.66	-0.44 (-1.70 to 0.82)	0.49	-0.69
Roll over	21.07	23.93	-2.86 (-3.96 to -1.76)	<0.0001	-5.13
Sit with support	24.63	24.85	-0.23 (-0.96 to 0.51)	0.54	-0.61
Sit alone	29.05	29.20	-0.15 (-0.96 to 0.66)	0.71	-0.37
Crawl	31.26	35.16	-3.90 (-5.32 to -2.47)	<0.0001	-5.40
Stand holding on	48.92	49.19	-0.27 (-1.52 to 0.99)	0.68	-0.42
Walk holding on	50.74	51.06	-0.32 (-1.99 to 1.35)	0.70	-0.38
Stand alone	53.68	57.00	-3.32 (-4.87 to -1.77)	<0.0001	-4.22
Walk alone	58.14	61.12	-2.98 (-4.51 to -1.45)	0.0002	-3.85