

A STUDY ON THE EFFECT OF BABY WALKER ON MEAN AGE ACQUISITION OF MOTOR SKILLS IN INFANTS

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ABSTRACT

History & Background: Development is a complex process completing in time, through the maturation of the nervous system. It is affected by the genetic, ethnic, nutritional, social, and economic backgrounds. One of the environmental factors affecting motor skills of the infants is the use of baby walker. Since the use of this device is very common in our country, we have conducted this study to evaluate its effects on motor skills of the infants. **Materials & Methods:** This longitudinal study was carried out on 300 infants referred to primary health care centers of Kashan district in 2005. They were allocated to two groups of 150 babies. Case group used baby walker, and control group did not. All of the babies were followed for two years, and the age of acquisition of motor skills were depicted by direct or telephone interview with the parents. Data was analyzed using t-test and Chi square test. **Results:** The mean age of acquisition of all motor skills including rolling, crawling, moving of hands and feet, sitting with and without help, standing and walking dependently and independently was delayed in infants using baby walkers. This difference was statistically significant ($P < 0.001$). **Conclusion:** Considering the results of this study we do not recommend the use of baby walkers in infants.

INTRODUCTION

Child development is a complex process which is completed in time and through the maturation of the nervous system. This process is affected by the genetic, ethnic, nutritional, social, and economic backgrounds.¹ One of the factors supposed to be effective in the acquisition of motor skills is the use of baby walker. In our country there is no definite data about the use of this instrument, however American Academy of Pediatrics has declared that each year about three million baby walkers are sold and more than half of the infants of the United States use it.² Studies on this subject have shown controversial results, so that Crouchman et al. and Seigle-Burton et al. have revealed that the use of baby walker has resulted in delayed crawling and independent walking.^{3,4} Garret et al. in a cross sectional study showed delay in independent standing as well as delayed crawling and independent walking.⁵

Kauffman and Ridenour in a case-controlled study found no significant difference between the two groups in achievement of motor skills.⁶

Absence of available literature, common use of baby walkers in our society and the beliefs in this regard about the development of motor skills in babies using it led us to conduct a study on the effects of baby walkers on the development of motor skills in infants referring to Primary health care centers (PHCC) of Kashan district in 2005.

MATERIALS AND METHODS

This longitudinal study was carried out on infants aged 3 to 15 months who were referred to PHCC of Kashan province for their routine examinations and vaccinations in 2005. After obtaining written agreement from their parents,

complete history taking and physical examination, those in complete health were enrolled to the study and followed for two years. During this time interval those with any disease affecting motor development were excluded. Three hundred babies complying with our criteria were assigned to one of the two equal groups; those using baby walker as the study group and those not using it as control group. Questionnaire including babies' age, sex, nutritional status, and mother's job was drafted and completed with the registration of the age of acquisition of motor skills including crawling, sitting with and without help, moving on hands and feet, standing and walking dependently and independently by direct or telephone interview with the parents. Data analysis was done using t-test and Chi square tests.

RESULTS

One hundred and seventy five babies (58.4%) were male and the remaining 125 (41.6%) were female. At the first contact 26% of babies were between 10 and 12 months, 25% between 8 and 10 months, 17.3% between 6 and 8 months, and 11% between 2 to 4 months.

There was no significant difference observed in sex, nutritional status and mother's job between the two groups (Table 1). There was a delay in acquisition of all types of motor skills in babies using baby walkers ($P < 0.001$) (Table 2).

TABLE 1: Distribution frequency of studied infants based on sex, mother's job type of feeding

Use of baby walker		Yes	No	p-Value
Variables		Group 1 N=150	Group 2 N=150	
Sex	Male	85	90	0.558
	Female	65	60	
Type of feeding	Breast milk	116	118	0.328
	Formula	21	14	
	Both	13	18	
Mother's job	Housewife	114	122	0.259
	Employed	36	28	

DISCUSSION AND CONCLUSION

One hundred and fifty babies in our study were using baby walker. Data showed that acquisition of motor skills of

TABLE 2: Distribution frequency of infants based on their age of motor milestone acquisition

Use of baby walker	Yes	No	p-Value
Age of motor milestones acquisition	N=150 X-SD	N=150 X-SD	
Rolling over	3.41 – 0.78	3.26 – 0.67	<0.001
Crawling	4.47 – 1.01	4.01 – 0.81	<0.001
Kneeling	7.12 – 1.39	6.59 – 0.79	<0.001
Sitting with support	5.69 – 0.92	5.23 – 0.71	<0.001
Sitting without support	6.62 – 1.05	6.08 – 0.92	<0.001
Standing with support	9.16 – 1.32	8.26 – 0.90	<0.001
Standing without support	10.51 – 1.31	9.57 – 1.01	<0.001
Walking with support	11.14 – 0.97	10.17 – 0.96	<0.001
Walking without support	12.72 – 1.06	11.5 – 0.93	<0.001

walking on hands and feet, crawling, rolling, sitting with or without help, standing and walking dependently or independently in babies using baby walkers was delayed and this difference was statistically significant ($P < 0.001$). Garret et al in their study in 2002, in Ireland got similar results. They showed that there is a delay of 3.3 days in independent walking, and 3.7 days in independent standing for each 24 hours of use of baby walkers.⁵ Siegle et al. in their study on 173 babies showed a delay in crawling of babies using the device.⁴ Crouchman in a study on 66 babies found a delay in rolling in those using the walker.³ Thien et al. also showed delay in crawling, sitting, and standing in babies using baby walker.⁷ France showed a delay in sitting and standing and Reider showed that moving on hands and feet, sitting, and independent walking was delayed in their study group.^{8,9}

Kauffman et al. in a study on twins found no difference between babies using the device and those not using it.⁶ Rideenour et al also found no difference among the two groups.¹⁰

None of these studies included as many number of babies as our study.

Baby walkers are commonly used in our country. The result of this study as well as the others have shown negative effects on the acquisition of motor skills of infants; in addition there are some data about the physical damages resulting from falling down from the walker.^{7,11} It is recommended to increase awareness among the parents about these effects, as well as among the authorities to arrange for limitations in production and distribution of these devices.

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