Do Infants and Toddlers Demonstrate a Preference Toward Size or Weight when Selecting Toys to Carry During Free-Play?

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INTRODUCTION

- Learning to maintain balance during walking is a difficult task for new walkers resulting in frequent falls.
- Surprisingly though, during free-play, new walkers fall less when carrying toys and prefer to carry small toys (Karasik et al., 2012).
- New walkers may intuitively realize that carrying small toys is beneficial for walking and may intentionally focus on the toy's size when selecting which toys to carry.
- Given that toy size and weight can be decoupled (i.e., small toys can be heavy and large toys can be light), it remains unclear how new walkers factor toy weight into their toy-carriage preferences, and how both size and weight preferences might change with walking experience.

QUESTIONS OF INTEREST

1) What size and weight toys do new walkers select to carry?

2) Do these preferences change with walking experience?

METHODS

Participants:

New Walkers: N = 20 (6 male; M_{age} = 13 m, 17 d)

Experienced Walkers: N = 15 (10 males, M_{age} = 23 m, 27 d)

Procedure:

Participants engaged in a 20-minute free-play session with their parent(s) (Figure 1a).

The parent(s)-child were provided 18 toys that varied in size and weight such that small toys could be heavy and large toys could be light (Figure 1b; Table 1).

Measures:

Toy walking bouts: at least four continuous forward steps in which the child carried a toy (<0.5 sec between steps)

Toy properties: size and weight

a) b)

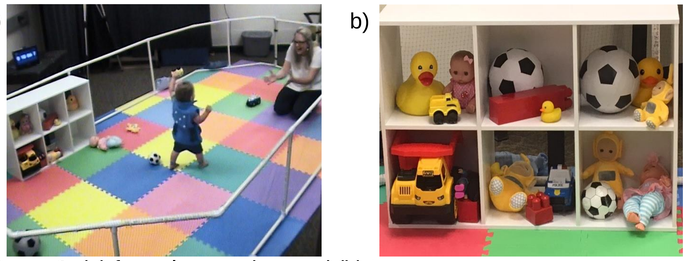

Figure 1. (a) free-play session, and (b) toy setup.

Toy Properties	
Size Category	**Description**
Small	Size of child's hand
Medium	Larger than hand but smaller than head
Large	Size of child's head

Weight Category	Percentage of BW	Weight (lbs)
Light	2-5%	0.5-1.25
Medium	8-10%	2-2.5
Heavy	12-15%	3-3.5

Table 1. Size and weight properties of toys included in free-play session. Body weight percentages were based on average weight of 12- and 24-months-olds.

RESULTS

An Age x Size x Weight repeated-measures ANOVA with Tukey corrections was conducted using proportion of time walking with a toy as the dependent measure. There was an Age x Size x Weight interaction (Table 2; Figure 2).

Overall Model	
F	**p-value**
6.39	<0.001
New Walkers Comparisons	
Comparisons	**p-value**
New walkers small-light vs all other size-weight combinations	<0.001
New walkers medium-light vs all size-heavy and all size-medium combinations	<0.02
Experienced Walkers Comparisons	
All size-weight combinations	>0.25
New Walkers and Experienced Walkers Comparisons	
Comparisons	**p-value**
New walker small-light vs experienced walkers size-weight combinations	<0.001

Table 2. New walkers carried small-light toys for a greater proportion of time than any other size-weight combination. They also carried medium-light toys more often than any size-heavy and any size-medium weight combination. Experienced walkers carried all size-weight combinations for a similar proportion of time. When comparing age groups, 13-month-olds carried small-light toys more often than 24-month-olds carried any size-weight combinations.

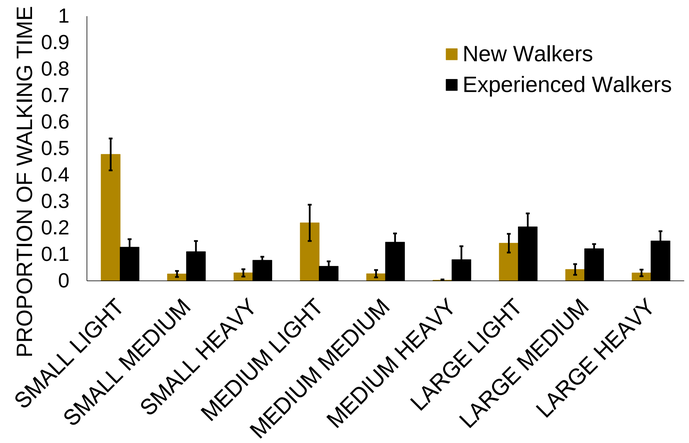

Figure 2. Average proportion of walking time by toy properties. Error bars depicted are standard errors.

DISCUSSION

- Overall, new walkers appear aware of specific toy properties that are detrimental/beneficial to walking and select toys to carry accordingly.
- Similar to Karasik and colleagues (2012), these results demonstrate ***new walkers prefer to carry small toys*** and furthers these findings by demonstrating that ***new walkers also consider toy weight, with small-light toys being their preference***.
- ***New walkers avoided larger and heavier toys***, suggesting they understand those toys may be detrimental to walking (e.g., Garciaguirre et al. (2007) found that heavy weights attached to new walkers' bodies lead to more walking disruptions).
- Given that ***experienced walkers did not demonstrate a preference for size or weight***, these factors may no longer be beneficial/detrimental.
- Future research should investigate whether special populations also select toys that may be beneficial for walking early in development.

REFERENCES

Garciaguirre et al. (2007). *Child Development, 78,* 664-680.

Karasik et al. (2012). *Developmental Psychology, 48,* 389-397.

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