Predictors of Skill Expression in Infants' Everyday Behavior

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Background

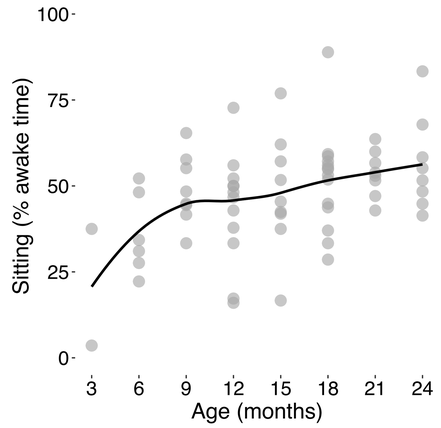
- New motor skills can facilitate perceptual and cognitive development, but only if the skills are expressed in daily life.
- Acquiring motor milestones—sitting, cruising, and walking—may lead to more sitting and standing expression, but is it actually because of the milestones or because they are general markers of gross motor development?
- Beyond motor development, opportunities for skill expression may depend on other factors like daily routines and infant devices that can influence infants' positioning.
- **Research Aim**: To examine if time spent sitting and standing (skill expression) is predicted by milestones (skill acquisition), gross motor scores, and/or age.

What best predicts daily sitting expression?

	Estimate	Std. Error	*t*	*p*
Age	0.017	0.005	3.533	.001 ★
Gross Motor	--	--	--	--
Sitting	0.182	0.073	2.486	.016 ★
Cruising	-0.115	0.059	-1.926	.059
Walking	-0.084	0.052	-1.627	.109

Final Model: R^2 = .26

- A backward elimination procedure removed EMQ gross motor as a predictor.
- Age and sitting ability uniquely predicted increased sitting expression in daily life.
- Although cruising and walking ability were included in the model, neither were significant predictors.

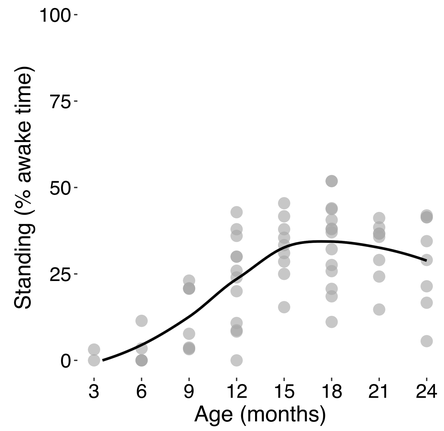


What best predicts daily standing expression?

	Estimate	Std. Error	*t*	*p*
Age	--	--	--	--
Gross Motor	--	--	--	--
Sitting	--	--	--	--
Cruising	0.161	0.033	4.835	.001 ★
Walking	0.150	0.028	5.302	.001 ★

Final Model: R^2 = .67

- A backward elimination procedure removed age, EMQ gross motor, and the sitting milestone as predictors.
- Cruising and walking ability uniquely predicted increased standing expression.



Method

Skill Expression

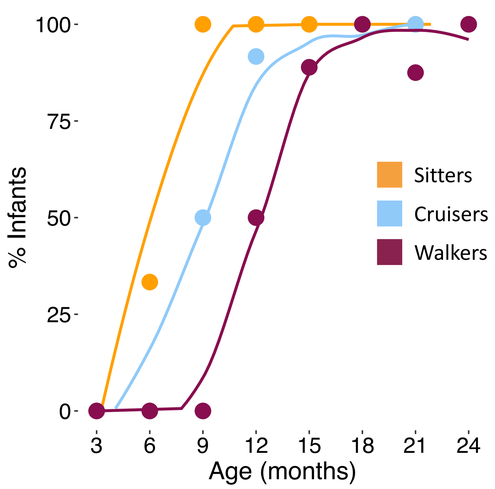
- Caregivers of infants 3-24 months old (N = 65) selected 4 days to receive 40 text message surveys that asked about infants' current activity at that moment.
- We calculated the amount of time infants spent sitting and standing (**skill expression**) from text message survey responses.

Ex: What position is your child in?

a) Lying flat on their back or side
b) Face down on their belly or on hands and knees
c) Sitting
d) Reclined
e) Standing
f) Suspended
g) Other

Milestones

- A structured phone interview with caregivers was used to gather infants' milestones: **sitting** without using their hands for support for at least 30 s, **cruising** for 6 ft, and **walking** without stopping or falling for 10 ft.

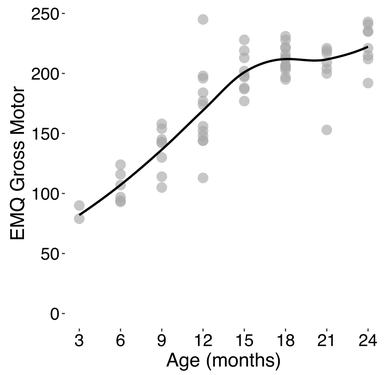


Ex: Can your child sit without using their hands for support for at least 30 seconds? Yes, or No?

- Each milestone—sitting, cruising, and walking—was treated as a dichotomous predictor in analyses.

EMQ Gross Motor

- The Early Motor Questionnaire (EMQ) assesses infants' gross motor, fine motor, and perception-action skills (Libertus & Landa, 2013).
- We used infants' EMQ gross motor score for analysis.



- The gross motor predictor was calculated as the sum of caregivers' ratings of 49 items asking how certain they are their infant shows the described behaviors.

Ex: When placed into a sitting position on the floor, your child can: hold on to some furniture and pull into a standing position

1 Sure that child does NOT show this behavior
2 Child probably does NOT show this behavior
3 Unsure whether child could do this
4 Child probably shows this behavior
5 Sure that child shows this behavior

Conclusion

- Skill acquisition predicts sitting and standing expression in infants' everyday behavior.
- A significant age effect for sitting indicates that motor development could not fully explain individual differences in daily sitting time.
- Our finding that cruising predicts standing expression demonstrates the importance of transitional motor stages.
- Motor assessments evaluate what infants can do but may not be enough to explain infants' daily behavior compared to full-day data.