

# The Development of Preschoolers' Use of Tactile Information for Goal-Directed Actions

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## Main Questions

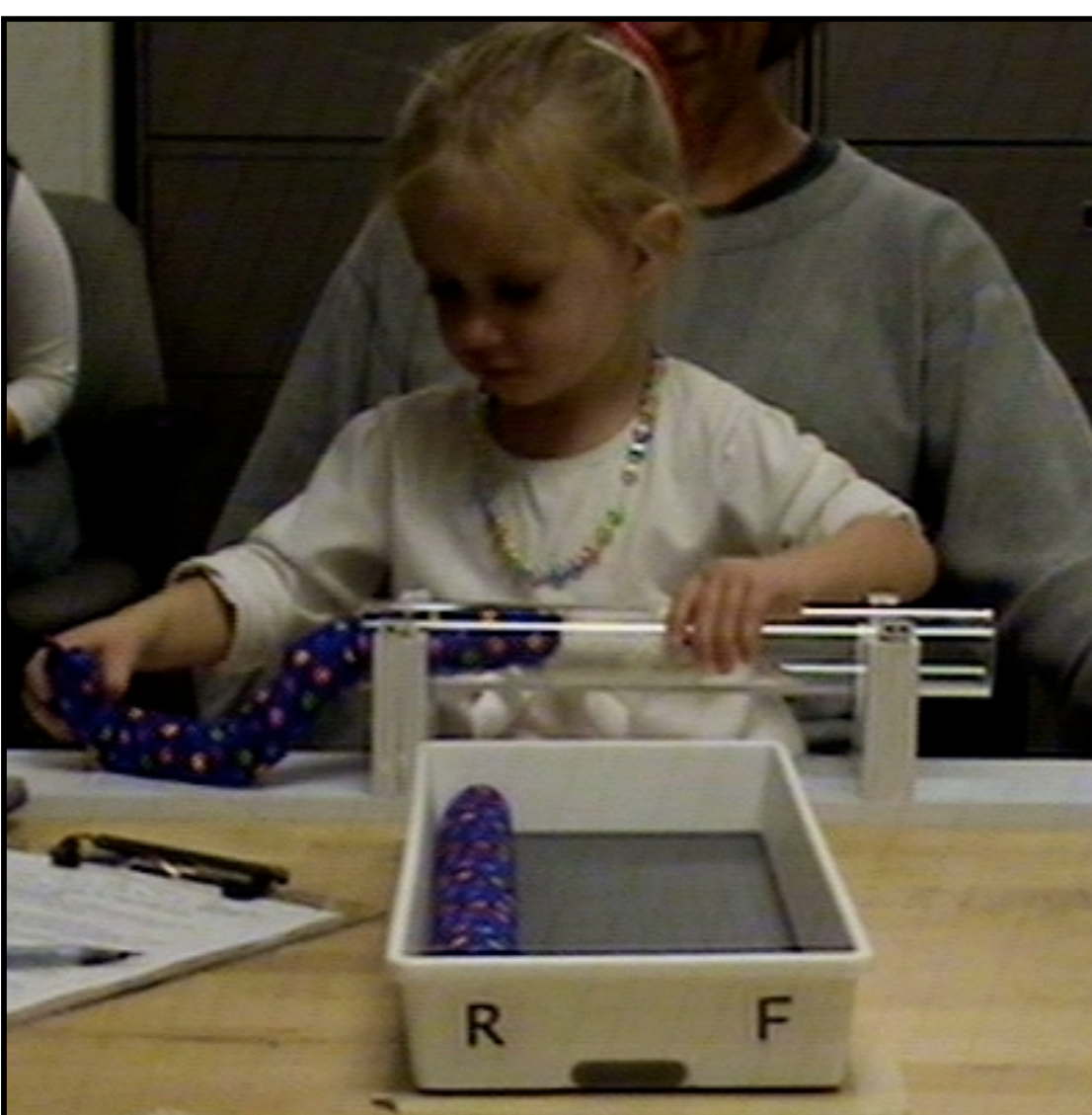
- **Exp 1:** Can young children learn to use tactile information to plan their actions?
- **Exp 2:** Can visual cues improve preschoolers' use of tactile information?

## Background

- Tactile information about an object's material substance is essential for planning goal-directed actions.
- Young infants are sensitive to tactile information about objects (Bourgeois et al., 2005).
- In this study we examined whether infants are able to *use* tactile information to plan their actions in a tool-use task.

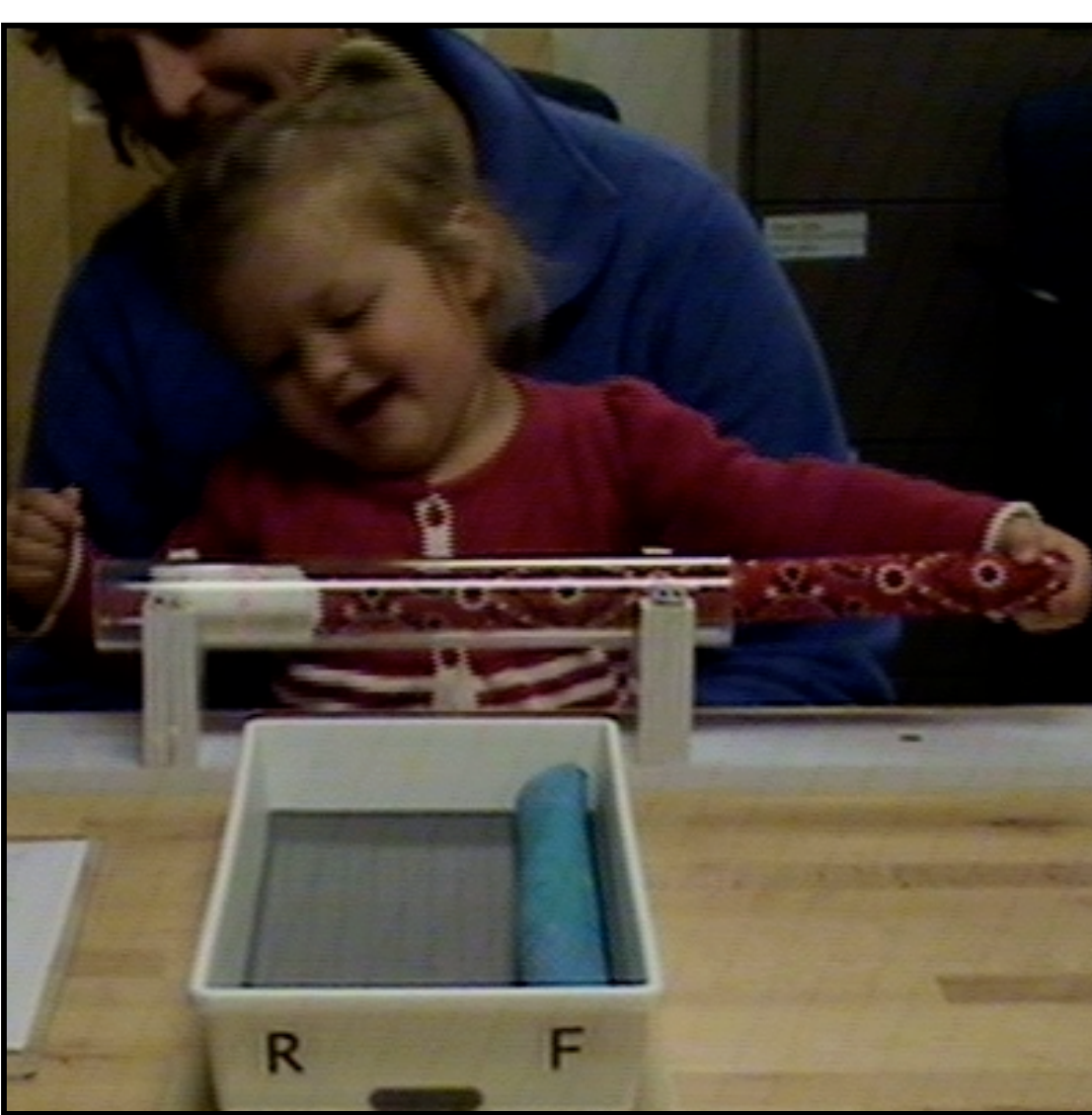
## Method

### Experiment 1



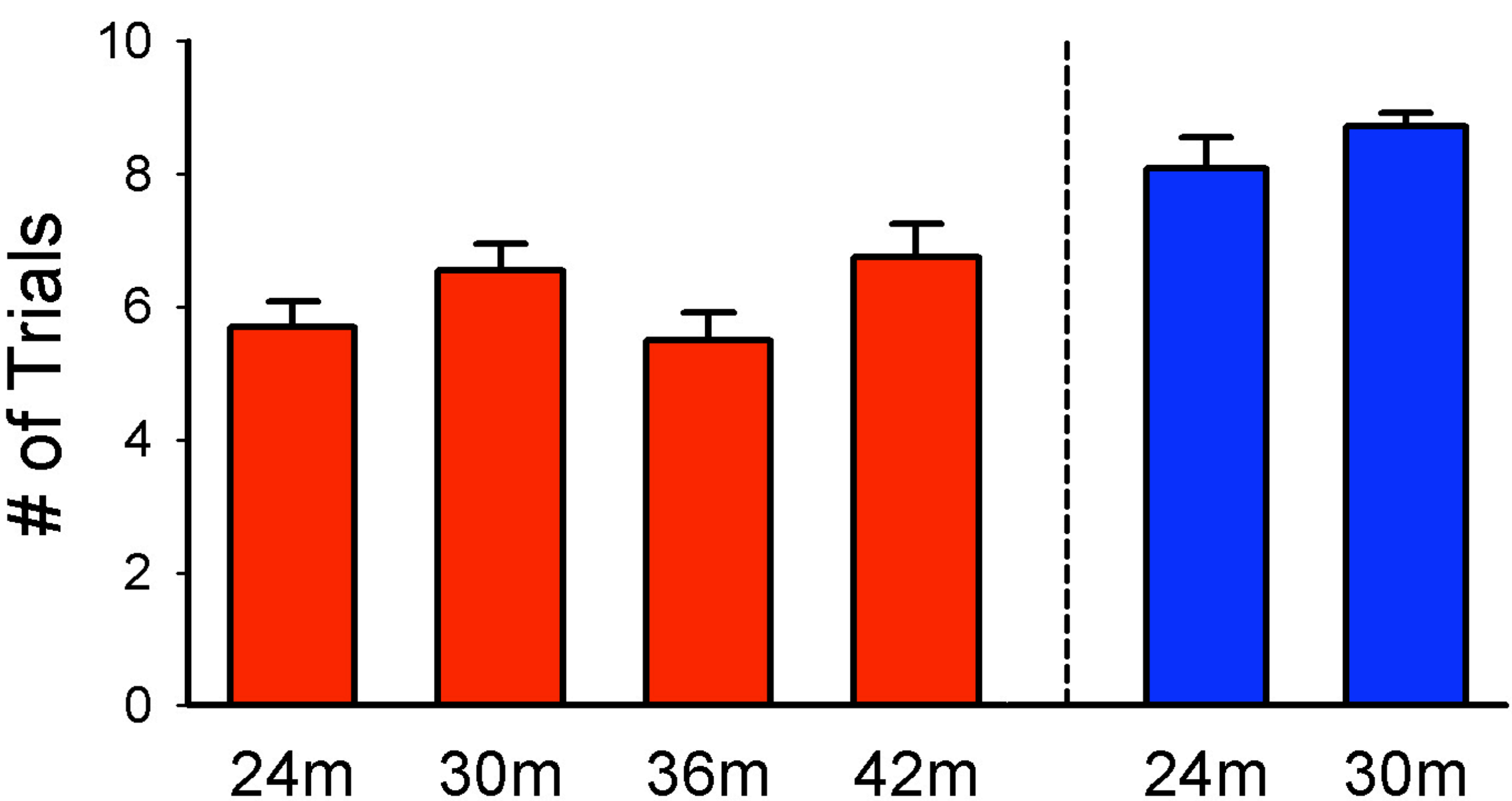
- 24-, 30-, 36-, & 42-month-olds (n = 95)
- 10 test trials
- Tools were visually identical and differed in rigidity only

### Experiment 2



- 24- & 30-month-olds (n = 48)
- 10 test trials
- Tools differed in rigidity and color (e.g., on all trials: red = rigid, blue = floppy)

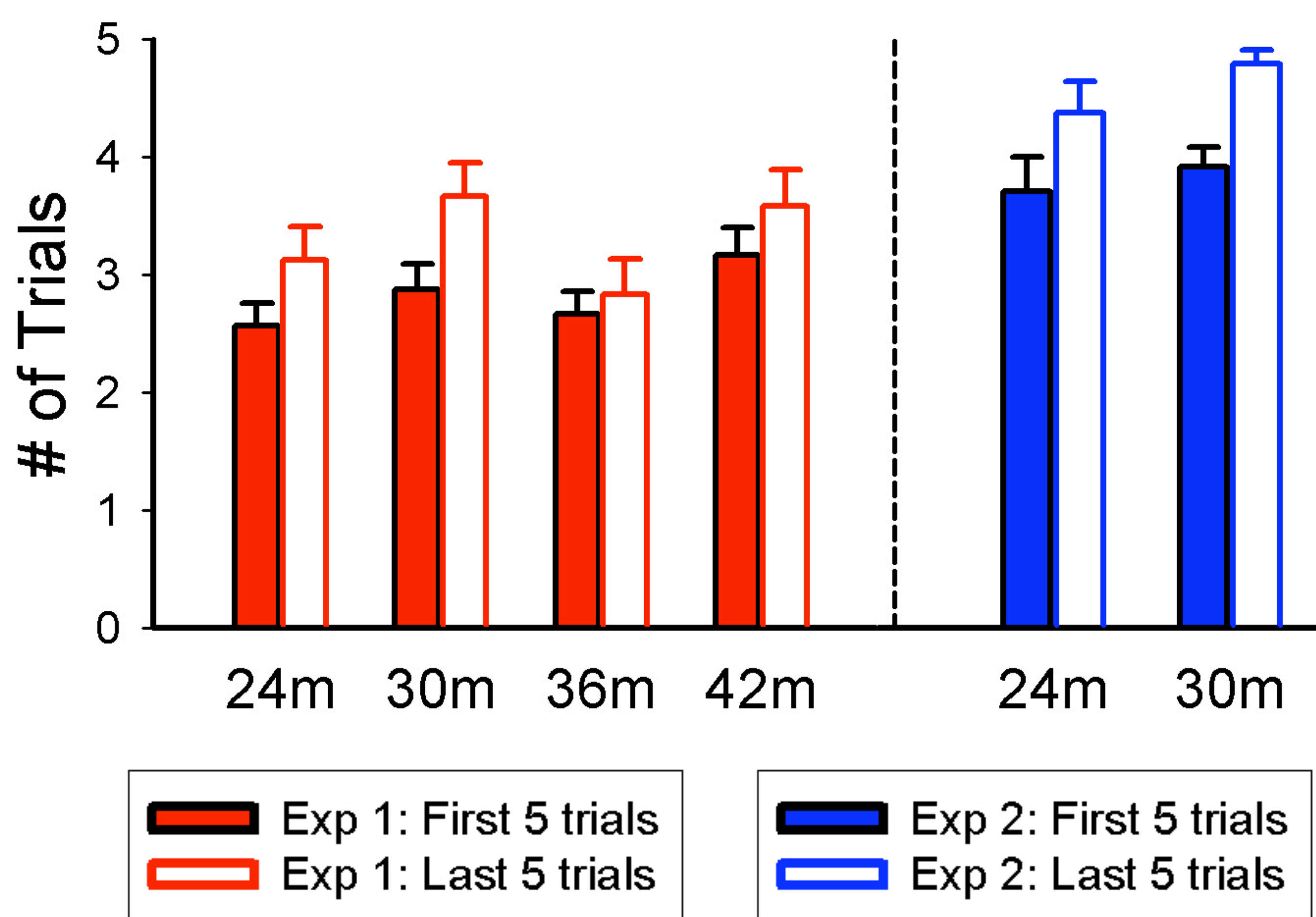
## Initial Tool Choice



- **Figure 1.** Number of trials in which children choose rigid tool initially did not vary with age (Exp 1:  $p = .10$ ; Exp 2:  $p = .22$ ). Children chose rigid tool more often in Exp 2 than in Exp 1 ( $p < .001$ ).
- **Table 1.** Percent of children performing above chance (binomial  $p = .044$ ).

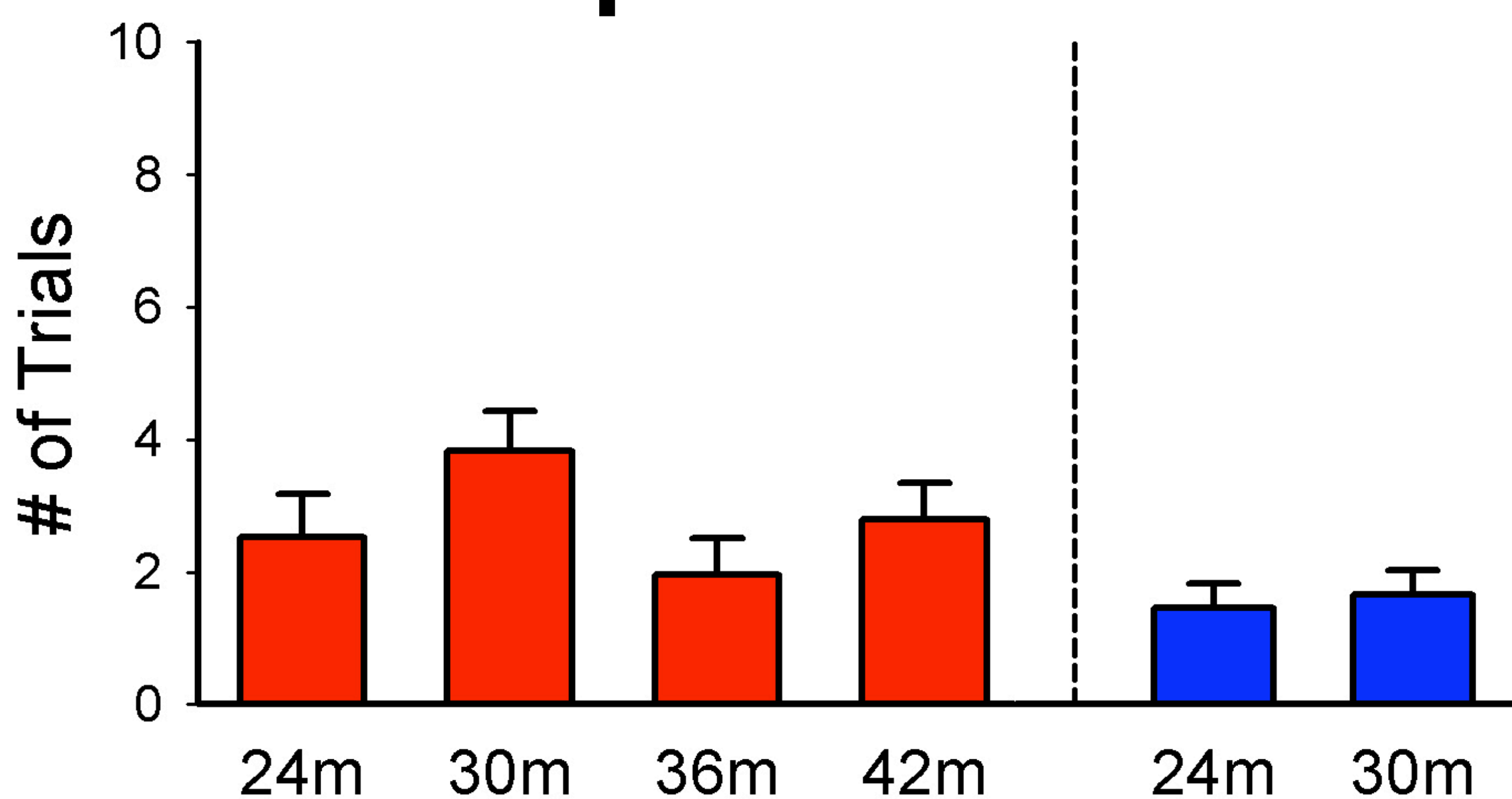
	24m	30m	36m	42m
Exp 1	17%	41%	23%	50%
Exp 2	79%	83%	--	--

## Learning Across Trials



- **Figure 2.** Performance improved significantly from first 5 to last 5 trials (Exp 1:  $p = .001$ ; Exp 2:  $p < .001$ ).

## Exploration



- **Figure 3.** There were no age-related differences in exploration before initial choice (Exp 1:  $p = .16$ ; Exp 2:  $p = .69$ ). Children explored more often in Exp 1 than in Exp 2 ( $p = .01$ ).
- **Table 2:** Percent of trials in which children chose rigid tool.

Exp 1	24m	30m	36m	42m
No Explore	49%	54%	51%	58%
Yes Explore	79%	85%	70%	91%
Exp 2	24m	30m	36m	42m
No Explore	81%	85%	--	--
Yes Explore	83%	98%	--	--

## Future Directions

- **Q:** Can children learn to choose the correct tool by observing others?
- Experimenter first demonstrates result of using the rigid and floppy tool.



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