

Initial Direction of Movement and Drop-Ball Procedure Influence the Gravity Bias in Preschoolers

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When a ball drops down into one curved tube, preschoolers tend to search for the ball in the location directly below the entrance to the tube, even if they are not connected to each other. The search error has been interpreted as a gravity bias (Hood, 1995). Based on Hood's tubes task, Experiment 1 investigated whether initial direction of movement and drop-ball procedure influenced the gravity bias. Children observed a ball drop down the designated tube in one of three conditions that differed in entrance angle to the tube (0°, 45°, or 90°). They observed an experimenter drop the ball in the first block of trials, and then dropped the ball themselves in the second block. The results showed that most children failed to find the ball and tended to search the vertical aligned box. The gravity bias was worse when children dropped the ball themselves in the 90° condition. In Experiment 2, we reversed the block sequence and found that the block difference was not observed as previously shown in the 90° condition. Thus, the expectation that objects fall in a straight line seems to be modulated not only by perceptual information about the task but also by cognitive resources recruited by the drop-ball procedures.

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