

# Researcher studies how infants compare quantities

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Parents are often amazed at how fast their child grows and develops. New research at the University of Missouri has determined that the ability to quantify – even things that are hard to quantify, such as liquid – may develop much sooner than most parents realize.

University of Missouri researcher Kristy vanMarle, an assistant professor in the Department of Psychological Sciences in the College of Arts and Science, has determined that contrary to what previous studies have shown, infants are able to quantify non-cohesive substances – like sand, water, or even Cheerios – as early as 10 months. As long as the difference between the two substances is large enough, vanMarle has found that infants will choose the larger amount, especially when it comes to food.

With the assistance of other researchers from her team, vanMarle tested the quantifying skills of babies by presenting infants with two opaque cups: one containing a small amount of food, and one containing a larger amount. Consistently, the babies chose the larger amount, as long as that amount was substantially more than the smaller amount. Her latest paper, "Tracking and Quantifying Objects and Non-cohesive Substances," chronicles these findings and has been accepted for publication in the journal *Developmental Science*.

"Several studies throughout the last 15 years have shown that infants are very good at telling how many objects they see; however, infants didn't

seem to count things like water or sand," vanMarle said. "What we're saying is that they can quantify substances; it's just much harder. The infants can see how much food goes into each cup and compare that in their memories. They decide which amount is larger, and they almost always select the larger one."

This information further refutes the long-held idea that babies are "blank slates that know nothing of the world," vanMarle said.

"Since psychologists have begun studying [infants](#) with sensitive measures, we've revealed a lot of early competencies that people didn't know were there. I think for [parents](#), it should be exciting to know that there's somebody in there that has some fundamental and basic knowledge of the world, and that knowledge is guiding their development and expectations," vanMarle said.

In the future, vanMarle says this kind of study could be linked to a child's progress in math-related skills, although she says that programs marketed to increase those abilities, such as "Baby Einstein," still have mixed reviews when it comes to scholarly study and results.

"We know a great deal about infant's perceptual abilities from very early on, even before birth, really," vanMarle said. "We know that babies prefer high-contrast images, for example, because they can see them better. But whether or not those types of programs actually confer any intellectual benefit – I think the research is not really clear."

Provided by University of Missouri-Columbia

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