

## Babies Are Smarter Than You Think



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It's always been tough to understand how babies' brains work, since they can't talk and don't take well to being stuffed into an MRI machine. But new technology is changing all that. *The Wall Street Journal* just published an interesting peek into the laboratory of Patricia Kuhl, co-director of the Institute for Learning & Brain Sciences, at the University of Washington in Seattle. Kuhl is one of the first scientists to use magnetoencephalography (MEG) imaging to get a peek inside the heads of infants and young toddlers. (As you can see below, it kind of looks like something you might find in an interstellar hair salon.) Much like a magnetic resonance imaging (MRI) machine, it shows changes in the magnetic fields in the brain, providing insight into exactly what's going on when babies are thinking. "The baby brain is a mystery, waiting to be unpeeled," Kuhl told *The Journal*. "It's full of secrets waiting to be uncovered."

The new branch of research that Kuhl and her colleagues are embarking on could shed new



light on

everything from autism to Alzheimers. For now, they're just figuring out what makes babies' brains tick, and based on what they've seen so far, Kuhl's team is led to believe that babies are much smarter than we've previously thought — or at least they show signs of functioning on a higher cognitive level than we've seen before. One study involving babies choosing different colored lollipops shows that babies as young as ten months old can use basic probability to solve problems. Another study starts in the womb and then tests babies' language skills as newborns. Turns out babies actually start learning how to communicate before they're even born. (You can listen to Kuhn talk more about "the linguistic genius of babies" in the TED Talk embedded below.)

These studies may sound sort of simplistic, but learning more about even basic functioning at an early age provides invaluable insight into problems that develop later in life. An infant brain has just 25 percent the volume of an adult brain, but that increases to 70 percent by age one. What Kuhl and company are essentially doing, is mapping out exactly what's going on in those few key months. Her team's not the only one either. A lab at Harvard has been hard at work on these problems for years now. Inevitably, all of this research should result in the ability to raise our children better. "We've said a million times, 'Read with your baby, talk with your baby, read your baby's cues,'" says Claire Lerner, a child developmental specialist. "But it takes on a much greater level of importance when you can actually connect it to brain function."



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