

Young babies don't experience tickles in the way you think they do

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An infant taking part in the experiment, receiving tactile buzzes to the feet with their feet crossed over. Credit: Jannath Begum Ali

When you tickle the toes of newborn babies, the experience for them isn't quite as you would imagine it to be. That's because, according to new evidence reported in the Cell Press journal *Current Biology* on October 19, infants in the first four months of life apparently feel that touch and wiggle their feet without connecting the sensation to you.

"Our findings are really the first to address what is quite a fundamental question about our sensory experience in early life," says Andrew Bremner of Goldsmiths, University of London. "When young babies feel a touch on their hand, can they appreciate where that touch is in the outside world?"

It now appears the answer is no. Bremner and the study's first author Jannath Begum Ali made this discovery by showing something that might seem paradoxical at first. When adults cross their hands or feet and someone touches them, they make more mistakes in identifying the origin of the sensation they've felt. Six-month-old infants make that mistake too, the researchers now report, just as adults do. But four-month-old infants get it right more often. In other words, infants actually outperform older infants and adults in correctly placing where they've been touched when their feet are crossed.

"We think [this means] that before around six months of age, [human babies](#) perceive touches just on their bodies, and not in the external world," Bremner says. "If one tries to imagine what this must be like—it's a bit of a dizzying idea."

The researchers made the discovery by tickling the crossed and

uncrossed feet of four- and six-month-old infants with mechanically delivered vibrations. The younger infants moved the foot that was tickled 70% of the time either way. In contrast, six-month-olds correctly identified the source of the tickle only 50% of the time with their feet crossed—no better than chance.

The new study was inspired by earlier findings showing that congenitally blind adults can localize touches equally well with limbs crossed or uncrossed. Adults who lost their sight after birth, even relatively early in life, do not show the same ability. The researchers wondered whether young infants with very little visual experience of their bodies might not yet perceive touch in the outside world. And, indeed, it appears they don't.

"Our argument is that for young babies, touches are just perceived as touches on the body; they're not perceived as being related to what they are seeing or hearing, or perhaps even smelling," Bremner says. "They're not related to objects perceived in vision. To me this sounds like quite an alien sensory world to live in—the tactile world being quite separate from the other sensory worlds."

The researchers say they now want to explore how and why infants develop a sense of themselves in the world and what the implications are for [infants'](#) understanding.

More information: Ali et al. *Current Biology*: "Human infants' ability to perceive touch in external space develops postnatally"
[dx.doi.org/10.1016/j.cub.2015.08.055](https://doi.org/10.1016/j.cub.2015.08.055)

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