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Learn to be more understanding by watching The Bachelor (this season, anyway)

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A new USC study finds evidence suggesting that the brain works hard to understand those who have different bodies when watching them in action.

According to the study's lead author, the finding supports initiatives to include more individuals with physical differences in mainstream media – such as Sarah Herron, a contestant on ABC's The Bachelor this season, who was born with a foreshortened left arm.

"Generally, it's considered impolite to stare. But what these results suggest is that we need to look. It's through this visual experience that we're able to make sense of those different from ourselves," said Sook-Lei Liew, who is the lead author of a paper on the research that appeared online this month in *NeuroImage*.

Liew, now a postdoctoral researcher at the National Institutes of Health, completed the research while she was a doctorate student at USC, working with Tong Sheng, a fellow graduate student, and Lisa Aziz-Zadeh, an assistant professor at the USC Dornsife Brain and Creativity Institute and the Division of Occupational Science and Occupational Therapy.

Liew, Sheng and Aziz-Zadeh monitored the brains of 19 typically developed individuals using functional magnetic resonance imaging (fMRI) while showing them a series of video clips. First they showed a typically developed person picking up objects and then a woman born

without complete arms using her residual limbs to perform the same tasks.

The fMRI scans showed that parts of the motor network responsible for picking up objects by hand are activated when simply watching another person performing the task – physical evidence of participants attempting to use their own body representations to represent the people they are watching on screen.

The thing that surprised the researchers was that same part of the motor network was activated to a greater degree when watching residual limbs doing the same activity. Participants' brains worked overtime to process the use of a type of limb that they did not have.

"Interestingly, we found that individual differences in trait empathy affected the result," Aziz-Zadeh said. "That is, individuals who scored higher in their ability to empathize with other people showed more activity in motor regions when observing actions made by residual limbs."

Further, when shown more clips of the woman with a residual limb—clips that lasted minutes instead of seconds—the fMRI scans showed similar motor network activity, which returned to a level comparable to when they were watching typically developed individuals, suggesting that increased visual exposure improved understanding.

"Stigma is one of the main challenges for people with physical differences," Liew said. "We need to examine why stigmas exist and what we can do to alleviate them. Learning about disabilities visually is one way that we can begin to map their experiences onto our own brains."

Provided by University of Southern California