

Study shows 'safety bubble' expands during third trimester

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New research, published in the journal *Scientific Reports*, shows that women undergo a significant mental as well as physical change during the late stages of pregnancy.

The study, carried out in Cambridge by scientists from Anglia Ruskin University and the Department of Obstetrics and Gynaecology at Addenbooke's Hospital, investigated peripersonal space.

This is the area immediately surrounding the body that our brain constantly monitors, as it is where the majority of interactions with the external world occur. It is commonly described as being the area within an arm's length of another person.

Using an audio-tactile test the scientists measured, for the first time, the boundaries of the peripersonal space during [pregnancy](#).

As well as testing [women](#) who were not pregnant, the researchers tested women at the [second trimester](#) (approximately the 20th week) when the [abdomen](#) is just beginning to enlarge, at the third trimester (approximately the 34th week) when the abdomen is clearly visible, and roughly eight weeks after giving birth.

The study found that a [pregnant woman's](#) sense of personal space expands, but only during the third trimester of pregnancy. No changes were observed at earlier stages of pregnancy or after giving birth, when the size and shape of peripersonal space were both comparable to that of non-[pregnant women](#).

Lead author Dr. Flavia Cardini, Senior Lecturer in Psychology at Anglia Ruskin University, said: "Pregnancy involves massive and rapid changes to the body both externally, as the body suddenly changes shape, and internally, while the foetus is growing.

"Our results suggest that when the body undergoes significantly large changes, at the stage when the abdomen is clearly expanded, the maternal brain also begins to make adjustments to the space immediately surrounding the body.

"Peripersonal space is considered a 'safety bubble' and it's possible that the observed expansion of this at the late stage of pregnancy might be aimed at protecting the vulnerable abdomen during the mother's daily interactions. So as the mother's bump grows, in effect the expanded peripersonal space is the brain's way of ensuring danger is kept at arm's length."

More information: *Scientific Reports* (2019). [DOI: 10.1038/s41598-019-45224-w](https://doi.org/10.1038/s41598-019-45224-w)

Provided by Anglia Ruskin University

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